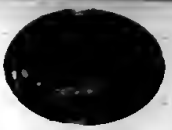
A CW survey shows user satisfaction with PC vendors rising. See page 113.



Visa International makes early progress on the Year 2000 problem. See page 79 for lessons learned.

COMPUTERWORLD

The Neweweekly for Information Technology Leadere
News updatee, featuree, forums: www.computerworld.com
November 18, 1996 · Vol. 30 · No. 47 · 170 pages · $3/Copy $48/year

"Network computers may be a network administrator's dream, but companies will be hard-pressed to sell their end users," says Bill Sheehan at Stone and Webster.

Prudential deal rocks IS staff

▸ *Employees charge poor communication soured ISSC outsourcing pact*

By Thomas Hoffman

PRUDENTIAL INSURANCE Company of America's massive outsourcing deal with IBM might be wonderful for the insurer's bottom line, but it has been the pits for some of the 900 affiliated IS employees, *Computerworld* has learned.

Fearful for their jobs and distressed by a lack of information, a half-dozen information systems staffers last week complained that morale is plummeting because senior management at the nation's largest insurance company has been uncommunicative about the $340 million deal, which was announced in September [CW, Sept. 23].

"I think the whole thing was handled really poorly," said a Prudential systems analyst in Florham Park, N.J., who requested anonymity.

Prudential's William Friel

Employee fears during outsourcing deals are "a normal situation," but managers tried to set a positive tone

"It could turn out to be a good opportunity [with ISSC], but I'm taking a wait-and-see attitude," said another Prudential systems analyst, who declined to be identified.

IBM's Integrated Systems Solutions Corp. unit, which won the five-year contract, hasn't guaranteed employment to anyone. ISSC deferred comment to Prudential.

The outsourcing deal is expected to help Newark, N.J.-based Prudential achieve unspecified productivity gains by focusing its remaining developers on creating applications on a System/390 mainframe and other Unix and Windows NT servers, said William Friel, senior vice president and chief information officer at Prudential.

Other factors upsetting the IS staff include the following:

- IS employees have been asked to confirm by today whether they intend to work at ISSC or not. Yet relocation assignments haven't yet been handed out, so IS workers feel "bewildered"

Prudential, page 12

Net computers bound for low-end desktops

▸ *End-user loyalties, legacy systems at issue*

By Laura DiDio and April Jacobs

DESPITE A POWERFUL push by vendors such as Sun Microsystems, Inc., Oracle Corp. and IBM, information systems managers at large corporations are eyeing network computers mainly for niche uses, not PC replacement.

Interviews with IS managers at 20 large sites — companies with more than 10,000 PCs — revealed interest in the cost-saving potential of the Internet access devices. But the appeal was tempered by a need to protect heavy investments in existing PC networks and maintain user loyalties.

Still, the cost-saving benefits promoted by network computer advocates are finding a receptive audience at some companies.

An exclusive *Computerworld* survey of 204 users — mostly in midsize businesses — last week found that 30% plan to purchase network computers in

Network computers, page 28

Our Annual Skills Survey shows demand rising for certain skill sets. Consider this: PeopleSoft client/server software expertise can command 29% salary premiums over average systems analyst wages, and PowerBuilder know-how may rake in a 17% boost. Check out *Computerworld's* survey results for the hottest areas in 1997 and what employers are willing to pay.

Skills Survey, page 87

Thin clients may alter app licensing fees

By Lisa Picarille

THE ARRIVAL of the network computer may trigger changes that favor users in software pricing and licensing practices.

Information systems managers and industry watchers say that if the network computer grabs a foothold on the corporate desktop, the result could be simplified software licensing and lower software costs.

Things could get hairy while developers devise a new licensing model, but it appears users will wait.

Application licensing, page 159

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But more say they fail to address complexity. Page 3

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NEWSPAPER

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'Cool'

It was that word from the lips of a reader that convinced us that we were on the right track with this major redesign of *Computerworld*.

We're not your father's *Computerworld* anymore.

Just a few weeks ago, we showed focus group readers a bold new look for their newspaper. We wanted to appear a little more, well, flashy.

The focus group readers had a lot of nice words for the redesign. But my favorite was "cool." And so...

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In our first major overhaul of *Computerworld* since 1992, we had several major goals. A big one was to give our readers more news. We've done that by moving an advertisement off the page across from me and replacing it with a full page of news. We're the only IS newsweekly to lead off each issue with four consecutive pages of news.

We also wanted our front page to have greater visual impact and provide more reference points for articles inside the paper.

We're not your father's Computerworld anymore

Our technology sections are brighter and newsier. Our features sections are more consistent, linked by a common headline typeface and more powerful introductory pages. We're investing heavily in photography and research for next year as well. This week we've also launching a redesigned home page at www.computerworld.com. We've added seven columnists. The list goes on and on.

One thing isn't changing, though, and that's *Computerworld*'s commitment to providing our readers with the most impartial, analytical and comprehensive news coverage for IS leaders. But we definitely agree with that reader about our new look. Cool, isn't it?

The details: The body typeface is 9.2-point Scala. The headline typeface is Interstate. The designer is Ronn Campisi of Ronn Campisi Design in Boston.

Paul Gillin, *Editor*
Internet: *paul_gillin@cw.com*

THE FIFTH WAVE
BY RICH TENNANT

"ONE OF THEIR BLIMPS BROKE ITS MOORING AND FLOATED IN HERE ABOUT TWO HOURS AGO. THEY HAVEN'T BEEN ABLE TO LOCATE IT YET."

Sunbeam IS in turmoil

By Thomas Hoffman

SUNBEAM CORP.'S information systems group is being sliced and diced as part of new CEO Albert Dunlap's reorganization plan, *Computerworld* has learned.

IS managers say all technology projects ground to a halt following Dunlap's announcement last week that he plans to slash the company's 12,000-employee staff in half and scrap 87% of Sunbeam's household appliance product line.

And Dunlap, who is known in the business world as "Chainsaw Al," is close to outsourcing Sunbeam's worldwide network operations to Computer Sciences Corp. (CSC) in El Segundo, Calif.

When turnaround specialist Dunlap took over Scott Paper Co. in 1994, he selected CSC to run Scott's domestic IS operations under a one-year, $30 million outsourcing deal.

"Chainsaw Al is going to outsource everything that can't be nailed down," said Howard Anderson, managing director at The Yankee Group in Boston.

Dunlap's modus operandi is to cut costs dramatically, drive up the stock price and then sell, said Stanley J. Goldman, president and CEO of Technology & Business Integrators, an outsourcing and benchmarking consulting firm in Woodcliff Lake, N.J. For example, Dunlap went on to sell Scott Paper to Kimberly-Clark Corp. for a $100 million profit.

Robert Gaynor, IS director at Sunbeam's Fort Lauderdale, Fla., headquarters, said it is unclear what will happen to the company's 78-person IS staff. "The headhunters have moved in, but hopefully people aren't taking offers yet," Gaynor said.

"The mood here is pretty dismal."
Bob Hanson
Sunbeam telecom manager

PROMISES MADE

Bob Hanson, a telecommunications manager at Sunbeam-Oster's Household Products division in Laurel, Miss., said the 14 people in the group's network and operations unit have been promised at least interviews with CSC.

Six of them have been guaranteed jobs, and eight more will be interviewed for other potential opportunities at CSC, Hanson said.

Hanson said he expects to be offered a job by CSC but is going to have to give it serious thought. "A lot of it depends on whether [CSC] is willing to make any kind of formal commitment on a contract," he said.

A CSC spokeswoman declined comment.

With only nine months at Sunbeam, Hanson probably won't be offered much of a severance package. He said he was told that employees with less than five years at the company will receive four weeks' salary.

Half the 6,000 Sunbeam employees losing their jobs will get pink slips by year's end in what industry experts said is the largest workforce reduction ever on a percentage basis.

Sunbeam brought Dunlap in after the company failed to meet analyst estimates for six consecutive quarters. Sunbeam's stock price has fallen 52% since 1994.

Laroux macro virus strain hits Excel

By Stewart Deck and Lisa Picarille

SECURITY EXPERTS at the National Computer Security Association (NCSA) warned that a variant of the Laroux macro virus is quickly spreading through Microsoft Corp.'s Excel spreadsheet program.

The virus affects PERSONAL.XLS files in Excel Versions 5.0 and 7.0 that run on Windows 3.1 or Windows 95. Once a user's version of Excel is infected, any worksheets created using that release will contain the virus. The virus has spread particularly fast because users often exchange spreadsheets via electronic mail.

One security expert warned users that although the Excel virus wasn't "designed to do explicit damage, it is still dangerous." Stephen Cobb, director of special projects at the NCSA, said, "Most of the damage this one will cause will take place in the disinfecting and cleanup process. In removing the virus, people can delete legitimate macros. That's where most of the data is lost."

Unfortunately, most companies with antivirus software use it only after they have been hit.

That's the case for Ralph Marshall, manager of technology deployment in the information systems department at USAir, Inc. in Winston-Salem, N.C. His company was hit hard by a strain of the Word Macro virus about a year ago.

But Marshall is hopeful history won't repeat itself with the Excel virus.

"I'm not concerned because after the Word Virus, we put antivirus software on every machine. We paid our dues on that one, so now we should be OK," he said.

How can you tell if you are infected? If you use the Tools Macro command and see a dialog box that says, "PERSONAL.XLSauto_open, auto_open, PERSONAL.XLS check_files, check_files," you may well be.

The NCSA recommends antivirus products that provide "proactive, real-time protection at the desktop" to combat this strain of the Laroux virus. More information on this specific virus is available on the NCSA's site, www.ncsa.com/xlmacvir.html.

Come visit our Web site @Computerworld

•CHECK OUT OUR COMDEX COVERAGE. Lots of network computers will be announced at the show, but it's not clear whether they will catch on as muscle or be relegated to niche status. At the heart of the debate over network computers vs. PCs is the question of which machine provides the lowest total cost of ownership. We invited three industry analysts to probe the subject.

•CLAREMONT RESORT & SPA in Berkeley, Calif., goes with thin clients for its guests. Read about it at www.computerworld.com.

New management tools keep tabs on app traffic

By Patrick Dryden

A NEW BREED of management software is emerging to track the end-to-end performance of distributed client/server applications.

Platinum Technology, Inc. is shipping WireTap, an application monitor. Computer Associates International, Inc. pledges help next month, and two newcomers expect to offer options early next year.

These tools watch all kinds of application traffic throughout a network and gather statistics centrally for analysis. That gives managers a way to watch the entire delivery process from the perspective of the response time experienced by users.

"We need some way to back up our performance claims to users."

– MICHAEL TARDIF, GOLDMAN SACHS

"There's a market out here for these tools," said Michael Tardif, vice president of enterprise technology for operations and systems management at Goldman, Sachs & Co. in New York. "We need some way to back up our performance claims to users."

To help assure service quality, IS operators want to know before the help desk telephone rings that a vital business application is slowing, so they can get a jump on finding the cause in a clogged network or stressed server.

Now that networks are fairly consistent enterprisewide, a central monitor can gauge performance for all users, said Rick Villars, an analyst at International Data Corp. in Framingham, Mass. "You couldn't begin to measure response time for a businesswide application when the network was [composed] of separate fiefdoms."

STREAMLINE OPERATIONS

At Eli Lilly and Co. in Indianapolis, "the goal is for IT to see and solve the problem without having to coordinate eight different departments," said Tom Reinsel, network design and management analyst.

The pharmaceutical firm is testing MeasureWare agent software from Hewlett-Packard Co. on its servers, Reinsel said. Then central HP tools can track the transaction start and stop time between clients and one or more servers required to complete a request.

Reinsel said he would like to watch application activity from probes placed in the network, so he will also test Econet from Compuware Corp. in Farmington Hills, Mich. Available since June for $23,000, Econet tracks response time for more than 1,200 applications.

Upcoming products include the following:

- **Platinum Technology** is shipping WireTap, a monitor that measures the round-trip time for transactions across a network, intranet or the Internet. Pricing starts at $26,000 for a console and set of network probes.
- **CA** expects to complete beta tests next week of Response Manager. It tracks end-user response time through a historical database and real-time monitor and offers policies for notifying operators and launching corrective actions. Response Manager should be released in December with the new versions of CA's Unicenter platform.
- Next month, **International Network Services, Inc. (INS)** will expand EnterprisePro, its traffic monitoring and analysis service, to measure application activity, according to INS officials in Sunnyvale, Calif.
- Startup **Network Intelligence, Inc.** plans to release in January a combined network and application monitoring platform called Contour. It can scale to cover networks as large as 100,000 nodes, tracking performance and events in distributed Oracle Corp. databases, according to officials in Palo Alto, Calif.
- Paris-based **InfoVista SA** expects to complete European beta tests and open shop in Mountain View, Calif., by February to roll out its namesake software. InfoVista gathers performance data from a variety of sources, warehouses it centrally and presents reports specifically geared toward monitoring quality of service.

Netsys Technologies ships a network management utility. See page 63.

The next sales force

By Alan S. Horowitz **Beneath today's Internet noise, a siren song calls out to marketers, luring them with the promise that the World Wide Web will become the biggest mass market since television. The Internet may not change the way every product and service is peddled, but it will change the way many are sold, and it will redefine relationships between buyers and sellers. The Internet is destined to be an important marketing and sales force. "The Internet will be a major advertising vehicle," says Robert Blattberg, a professor of marketing at Northwestern University in Chicago.**

The Internet will change the sales process, count on it. For example, although the average car buyer will still visit a dealership to test-drive and tire-kick, customers who use the Internet generally know more about the cars than those who don't.

That speeds the sales process, says Jerry Chase Jr., general manager of Framingham Ford in Framingham, Mass. It

Sales force, page 127

Mark Boisclair

Data mart tools: Good start, limited fix

By Craig Stedman

USAAS SAID THE EMERGENCE of packaged data mart tools will help data warehousing neophytes get started. But the tools won't wipe away all the cost and complexity issues bedeviling warehouse builders.

The idea of a "warehouse in a box" sounds heavenly, a half-dozen users said last week. But in the real world, they added, even reduced-scale data mart projects are still burdened by factors such as data modeling complications, connectivity problems and limited resources.

"These tools are great, but there's no magic in them," said Jonathan Wiltshire, data administrator at San Diego Gas & Electric Co. "None of them will replace the need for doing the grunt work [to build a warehouse]. You still have to get down in the trenches and work out the problems."

Data mart packages that cost less than $100,000 are proliferating at near-warp speed. Information Builders, Inc. introduced a SmartMart bundle last week, and VMark Software, Inc. will announce its DataStage tool this week.

They join a crowd of vendors that includes IBM, Sybase, Inc., Informatica Corp. and Sagent Technology, Inc. Oracle Corp. confirmed recently that it also is piecing together a data mart offering.

Wiltshire and other users said the bundles can save development time by automating the process of setting up and scheduling the data extraction and transformation routines that are needed to move files from production databases to a data mart. Until recently, companies typically had to write custom extraction programs or integrate a mix of tools.

But users said the data mart packages aren't a panacea. For example, Bob Peck, chief information officer at Allianz Insurance Co. in Burbank, Calif., said it has taken a longer-than-desired seven months to build a data mart with Informatica's PowerMart tools.

That's because of the complexity of the project, which involves seven applications with individual data formats. "We're really stretching it," Peck said. Allianz had to go outside PowerMart and write native SQL code to make things work, he added.

DATA MARTS VS. DATA WAREHOUSES

Which approach do you use now, and which do you plan to use?

	Now	Future
Data marts	30%	46%
Enterprise data warehouses	50%	29%

Source: Meta Group, Inc., Stamford, Conn.

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Road to intranet paved with congestion issues

▸ *Content, bandwidth among the concerns*

By Bob Wallace

BEFORE BUILDING an intranet, IS managers must first figure out what type of content — straight data, graphics, video and/or audio — they will provide, determine the bandwidth impact and set procedures for continually posting new information on the network servers.

Failing to take those fundamental steps is akin to opening Pandora's box.

Your wide-area network could collapse under the weight of long connections to high-bandwidth content sources, including real audio, MPEG video streams and interactive, graphics-intensive applications.

And analysts warn that without a comprehensive process led by a webmaster, continuous postings of new items created by different individuals, departments and divisions could turn intranet administration into an exercise in futility.

WAN TRAFFIC TRIPLES

Before an intranet

▪ A 1M-byte price list is sent via E-mail once per month to 100 employees at 10 sites. Total WAN load: 10M bytes.

With an intranet:

▪ 100 employees access the server five times per day, 20 days per month, for continuous updates. Total WAN load: 30M bytes.

Source: Gartner Group, Inc., Stamford, Conn.

CONSTANT TRAFFIC

Providing constant information access through an intranet typically increases WAN traffic. That's because users can access continually updated content, such as a price list, any time and more frequently than if the information was distributed once per month, analysts said.

Before he built an intranet, Rick Zipes decided to give some employees access to real audio on the Internet. "Three days later, our [wide-area] network was swamped because people were listening to CDs," said Zipes, director of communications and computing at Mitel Corp. "We had to turn off access to audio. It was a valuable lesson."

Information systems managers need to walk through each access situation and determine the approach that will have the lowest possible impact on the network before broadly offering access to internal and external users.

In Zipes' case, he could have required that where users had to download the audio and play it locally rather than stay linked to an audio source in the intranet, thereby tying up valuable bandwidth.

The same holds true for bandwidth-intensive video content, said James Jones.

"We give users access to MPEG video clips of classrooms and other facilities, but we only let them download the images and run them locally," said Jones, who is a principal network engineer at Bristol Myers-Squibb Co. in New Brunswick, N.J. And compression can ease content dowloads.

"Once we reached 55% usage on our 128K-bit links we decided to double our pipe speed to 256K bits, in anticipation of intranet traffic," said Cesar Munoz, an internetworking supervisor at Avery-Dennison Co. in Pasadena, Calif.

Controlling content is another key issue that can overload the network and its administrators. Many companies realize you can't just throw everything on a World Wide Web site.

"It's so easy to put canned applications up on your intranet, but you need to have some way to restrict what actually makes it," said Tom Peterson, a staff engineer at Lockheed Martin Idaho Technologies in Idaho Springs, Idaho.

The webmaster needs a plan for handling the continual new posts on servers. Without a plan, intranet management becomes a nightmare as different departments and divisions often throw up rogue servers without permission and support.

Jones said he may have a solution. "Our webmaster meets with each of our departments to ascertain their needs and explain to them how postings will be handled on an ongoing basis," he said.

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▸ CEOs deliver mandate to IS:

Try speaking English

By Julia King

SCOTTSDALE, ARIZ.

Trying to secure sponsorship from top executives for a key information systems project?

Step one is to lose the acronyms.

Most CEOs could care less about things such as ORBs and BAPIs, and that's assuming they know what you're talking about in the first place.

Instead, talk about costs, including the cost of end-user training, and relate how every dollar invested in IS will ultimately affect the business.

At Viskase Corp. in Chicago, that means telling CEO Dean Mefford how implementing new enterprise client/server applications will help the company make more money selling casings for hot dogs and other meats.

STRAIGHT TALK

At Graphics Packaging Corp. in Wayne, Pa., president and CEO David Hofmann wants IS managers to tell him in plain English how new technology will help the $400 million specialty packing firm boost sales and cut costs.

"To talk about DOS, 3.1 and lots of other nuts and bolts is meaningless without a frame of reference to the business," Hofmann said. "I want [IS managers] to assume I don't know their discipline and to know enough about our business to tell me why we should do a project."

Mefford and Hofmann were among the 40 or so top executives here attending a recent CEO Technology Retreat sponsored by Computer Associates International, Inc. Their purpose was to gain first-hand experience with basic technologies, such as spreadsheets and electronic mail, which many executives said they had never used.

"My admin gets my [electronic] mail and prints it out for me," one CEO said.

Another said he simply telephones a manager in the finance department when he needs to review sales figures or other numbers.

Although they are eager to learn about technologies that could make them individually more productive, several CEOs said they don't have the time or the inclination to immerse themselves in the particulars of enterprise hardware and software, even though most of the executives sign off on millions of dollars in IS expenditures annually.

"In my business, it's marketing and sales that drives [Angus Chemical]."

BROAD PICTURE

They don't want high-tech particulars from IS managers either. They want straight talk about return on investment and informed recommendations about what is best for the entire business, not just the number crunching.

"IS people often come from accounting, so they tend to come with a bias of serving accounting needs rather than marketing or sales. But in my business, it's marketing and sales that drives the company," said Gary Granzow, CEO at Angus Chemical Co. in Buffalo Grove, Ill.

"The other thing that IS needs to do is build in ongoing training costs to the overall cost of making a [systems] change," Angus said. "We've seen it can take as long as two years to get people trained properly."

TELECOMMUNICATIONS

Legal wrangling delays local phone competition

By Kim Girard

THE HEADS OF telecommunications managers are spinning faster than the court rulings swirling around the Telecommunications Deregulation and Reform law of 1996.

But as lawyers battle it out in Washington, corporate decision-makers can only speculate about when competition will bring cheaper data packages, better service and bundled local and long-distance bills.

"It's real confusing," said George Hallenbeck, a telecommunications manager at Marsh & McLennan, a corporate insurance broker in New York. "When you're trying to set direction now, it's pretty tough. I'm trying to make sense of it."

At stake is control of the $90 billion local telephone market. Last week, the local exchange carriers won a round when the U.S. Supreme Court denied a Federal Communications Commission request to set a national rate for the use of local telephone lines by long-distance carriers.

Local carriers say individual states should control pricing and rules. The FCC, supported by AT&T Corp. and MCI Communications Corp., said national rules are needed to ensure quick market competition.

Observers said the court battle will postpone local competition until at least 1998.

That isn't soon enough for Peter Stempien, an information technology associate at Otis Elevator Co. in Bloomfield, Conn. "I spend most of my time dealing with five companies right now" for voice service at 256 sites in the U.S., Stempien said. "That's just unacceptable."

About 25 states have tried to set wholesale pricing for the local loop. If the local carriers continue to have their way, long-distance companies will stand to make less money from reselling services on local lines, said Tom Nolle, president of CIMI Corp. in Voorhees, N.J.

AS THE DUST SETTLES

While waiting for legal issues to be resolved, telecommunications managers should:

- Think twice before accepting a long-term project
- Follow FCC and court rulings
- Have contracts with at least two carriers

Source: Communications Managers Association, New York

AT&T eases switch to frame relay

▸ *New network services help users avoid purchase of costly equipment*

By Kim Girard

AT&T CORP. HAS an offering designed to make it easier and cheaper to convert more network applications from SNA to frame-relay technology.

The company last week unveiled a bundle of network services, including one that allows users to take advantage of a new AT&T central-office frame-relay access device (FRAD). It is for customers who have low-speed SNA data applications and don't want to invest in expensive frame-relay equipment.

With a central-office FRAD, SNA customers can save between $1,500 and $3,000 per FRAD at each remote location.

It "allows us to take advantage of frame relay without having to implement routing [hardware] at customer or distant locations," said Andy Sokolov, senior vice president at Pershing Financial, a financial services provider in Jersey City, N.J.

Pershing is testing the central-office service at three sites and is considering using it for 50 to 60 stock exchange or depository locations. The company could save 20% to 25% because it wouldn't have to buy the FRAD, Sokolov said.

The central-office FRAD, supplied by Framingham, Mass.-based Netlink, Inc., will be located at AT&T's central switching offices and managed by AT&T. The service is available now, but pricing hasn't been announced.

This is "absolutely needed" in the marketplace, said Christine Heckert, an analyst at TeleChoice, Inc., a consultancy in Verona, N.J. "It's a signal from AT&T that they're being customer-driven."

With a central-office FRAD

- Equipment purchases aren't required for remote applications
- Multiple lines can share the same frame-relay port
- Service is managed by carrier

The central-office frame-relay service is aimed at companies that support banking terminals, credit terminals and other remote services on multidrop, analog leased lines.

The service can be coupled with AT&T's managed FRAD service and offered to frame-relay customers who need equipment at their sites to manage multiple types of SNA traffic on their frame-relay networks.

Using the central-office FRAD, customers can save money by consolidating traffic from several different sites onto one frame-relay port. Although analog lines are replaced, the multidrop network configuration can still be retained, making the move easier for network managers, Heckert said.

Managers should either see better performance, reduced costs or both, she said.

This approach varies from the traditional and costly approach of replacing low-speed multidrop lines with expensive FRADs and 56K bit/sec. circuits, said Tom Nolle, president of CIMI Corp., a consultancy in Voorhees, N.J.

BIG SAVINGS

SNA users account for about two-thirds of the data traffic in the U.S., a potentially lucrative but untapped market. Only about 20% of all frame-relay traffic is SNA.

Analysts said IBM SNA shops could save roughly 30% to 40% on wide-area network charges by moving from their current multidrop private-line networks to AT&T's public network-based frame-relay service.

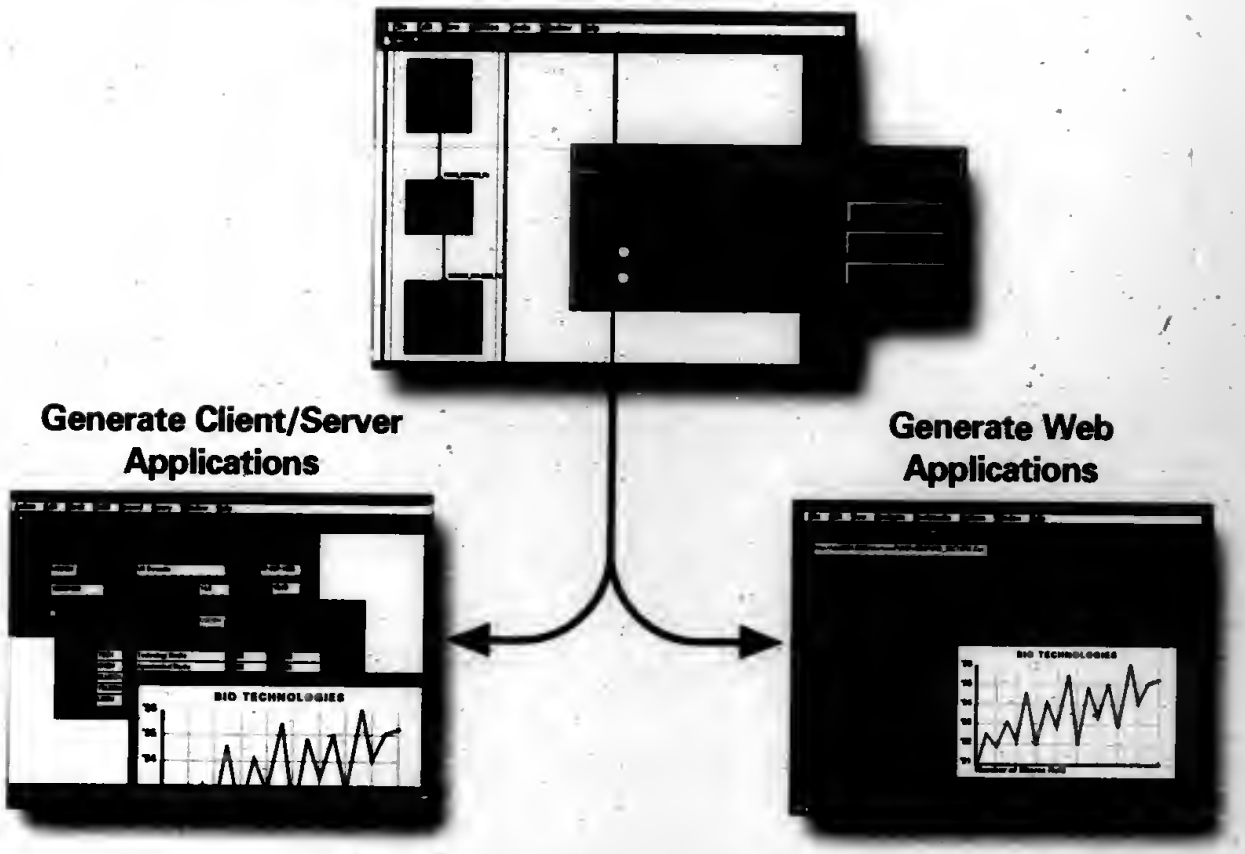
Although Sprint Corp., CompuServe, Inc. and Cable & Wireless PLC all offer managed FRAD services, none has central office FRADs, Heckert said. MCI Communications Corp. announced Friday it will offer Sync Research, Inc.'s FRAD for its managed FRAD service, which begins Dec. 1.

AT&T will initially offer Motorola, Inc.'s FRAD for its managed FRAD service.

MCI, BT want one-stop shop for global nets. See page 63.

Generate Web and Client/Server Applications

Oracle Designer/2000



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White House ultimatum to fed IS: Shape up systems or lose funding

By Gary H. Anthes

WASHINGTON

THE WHITE HOUSE has given notice to federal agencies: Put some discipline in your systems development activities or risk funding cuts next year.

FEDERAL CHECKLIST

Major IS projects must meet the following criteria:

- Support core functions of the agency
- Support more-efficient work processes
- Project a superior return on investment
- Comply with federal and agency IS standards and architectures
- Establish clear measures for project progress and secure buy-in from users
- Be implemented in small, phased-in pieces

Source: Office of Management and Budget, Washington

"They are very serious about this. This is a new era, using different kinds of yardsticks for federal information systems," said J. Timothy Sprehe, a former Office of Management and Budget (OMB) official and now president of Sprehe Information Management Associates in Washington.

POWER PLAY

It is usually Congress that uses the power of the purse to prod agencies into cleaning up their systems acts.

But the president's OMB (www.whitehouse.gov/wh/eop/omb) recently grabbed that ball and ran with it.

The budget office sent a memo to agencies that outlined eight criteria for evaluating the appropriateness and effectiveness of big systems efforts (see chart).

"OMB will recommend new or continued funding only for those major systems investments that satisfy these criteria," Director Franklin D. Raines warned the agency leaders in the Oct. 25 memo.

The agencies had until Nov. 12 to supply a list of projects for which more funds are needed, with an evaluation of how well they meet the eight criteria.

Reaction to the memo varied among federal chief information officers.

The majority said the criteria are reasonable, but some said the deadline for submitting compliance reports to OMB wasn't.

"The concept is right on," said Neil J. Stillman, deputy CIO at the U.S. Department of Health and Human Services. "But I think the timing is impossible," he said.

Stillman said evaluating projects against the criteria would be appropriate when the departments are preparing the fiscal 1999 budget next year.

"Thereafter, it will be very valuable to departments, to OMB and to the process," he said.

Alan P. Balutis, deputy CIO at the U.S. Department of Commerce, called the OMB criteria "a useful checklist but not a detailed guide on how to conduct [the development] process."

He said Department of Commerce would meet the deadline within a day or two.

Asked if Commerce Department systems projects would meet the criteria, Balutis said, "I would sure hope so." He said he wasn't worried about threatened budget cuts for troubled projects.

But Sally Katzen, head of OMB's Office of Information and Regulatory Affairs, said OMB will take a hard line on systems that don't measure up.

"We are not going to accept, 'We have satisfied criteria A, B and C, and — wink, wink, wink — can't we get through this gate?' " she said.

"I'd be very surprised if everything currently being funded remains funded," Katzen said.

Late domain-name renewal closes GEIS site for 2 days

The check may have been in the mail, but it didn't arrive in time to prevent a 48-hour shutdown last week at General Electric Information Services (GEIS) in Rockville, Md.

An "internal process breakdown" at GEIS resulted in a failure by the company to make its $100 annual renewal of the geis.com domain name, said John Berry, a spokesman for GEIS.

That prompted Network Solutions, Inc. in Herndon, Va. — the company that assigns and administers domain names — to delete geis.com from its database.

The impact was fairly minor, preventing electronic mail from coming into the geis.com E-mail gateway. "A handful of customers reported an impact to our 800-number," Berry said.

He said GEIS provides electronic data interchange services to about 40,000 companies via a different domain name, and those services weren't affected.

GEIS could be better organized. But another way to prevent this problem, according to Ken Crutchfield, a staff consultant at The Dun & Bradstreet Corp. in Parsippany, N.J., is for the InterNIC Registry at Network Solutions to offer an option by which names are renewed each year and the $100 fee is charged automatically to a credit card.

"What's the value of a domain name?" Crutchfield asked. "If it's gone, it can cost you a lot."

But Don Mitchell, a staff associate at the National Science Foundation, which oversees the InterNIC Registry, said the process is working as intended. The company sends out "repeated warnings" before shutting off service, he said.

Separately, the Internet Society in Reston, Va., named members of the new Internet International Ad Hoc Committee (www.iahc.org). The group will consider expanding the number of companies that can assign Internet addresses and increasing the number of high-order domain names of the type .com and .org.

— Gary H. Anthes

SHORTS

Palmer bullish on Digital

Digital Equipment Corp. CEO Robert Palmer said the company is on track to beat analysts' profit projections for the current fiscal year. At the annual shareholders' meeting last week in Boston, Palmer said most of Digital's turnaround is complete, and the company is poised for growth and profitability. The news pushed up Digital's stock by more than two points.

Chase plans proceed

The Chase Manhattan Bank Corp. this week plans to add some meat to its project to build systems that let companies buy business supplies over the Internet. Chase today plans to announce a joint venture called Intelisys Electronic Commerce LLC, with BVR LLC, a New York-based software company.

Navigator beta ships

Selected users last week received early beta-test copies of Netscape Communications Corp.'s Navigator 4.0, The package is part of the new Communicator line of World Wide Web-based groupware, electronic mail and other products designed to compete with Lotus Development Corp.'s Notes and Microsoft Corp.'s Internet Exchange. Meanwhile, Microsoft denied a published report that it has delayed release of Internet Explorer 4.0 until the middle of next year. But the vendor acknowledged that Internet Explorer 4.0 is one to three months behind schedule [CW, Nov. 11].

Groups oppose 'net fees

Fifteen information technology companies and trade associations have formed a coalition to oppose efforts by local telephone companies to increase fees for Internet use. The DATA Coalition said it will lobby the Federal Communications Commission to deny a request by the phone companies to charge Internet service providers for connecting to local phone networks. Under existing rules, Internet providers are considered users and pay no connection fees.

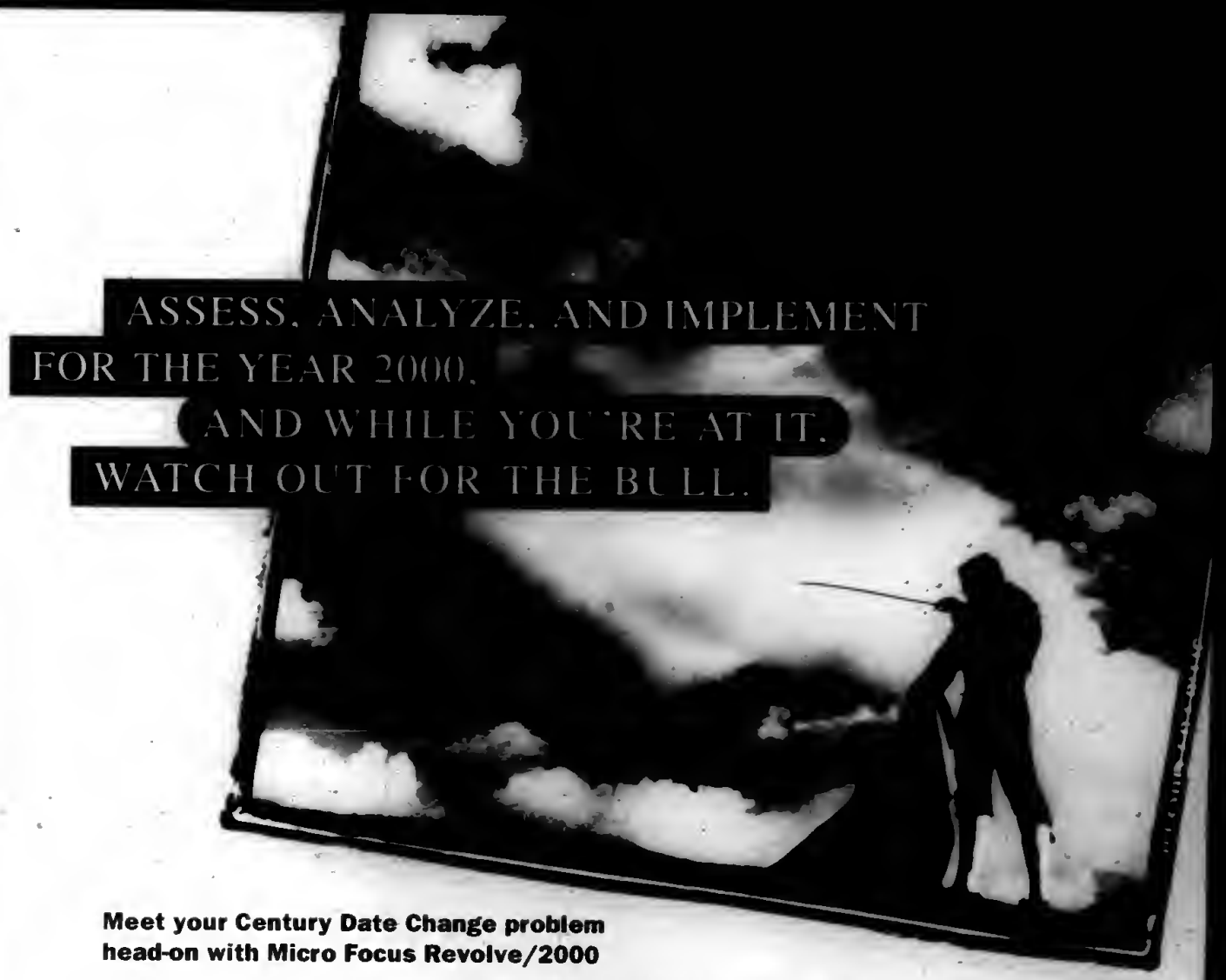
Microsoft, BT/MCI team

Microsoft last week announced a joint venture with telephone giants MCI Communications Corp. and British Telecommunications PLC (BT) to sell intranet products worldwide. Through the proposed merger, called Concert, users by early next year will be able to buy intranet-hosting services, networking hardware, Microsoft Web browsers and servers, and Windows NT and other software.

SAP embeds software

German software giant SAP AG last week said it will embed a third-party vendor's technology in SAP R/3 for the first time. Version 4.0, which is due next summer, will include technology from Iz. Technologies, Inc. in Irving, Texas.

SHORT TAKES Two venture capital firms are investing $6 million in the National Association of Realtors' troubled online service. Allen & Co. and J. H. Whitney & Co. will provide the financial backing for a partnership that will manage and operate a service that provides property listings on the Internet and an intranet where NAR members and the organization can communicate. ... Sun Microsystems, Inc. last week reduced prices by up to 38% and beefed up entry-level configurations for its UltraComputing workstations and workgroup servers.



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Microsoft in Visual Basic bundling deal with 40 vendors

▸ *Sets stage for slipping ActiveX components into market*

By Sharon Gaudin

CUSTOMIZING PACKAGED software should get easier after Microsoft Corp. cut a deal with 40 software vendors to include Visual Basic programming capabilities in their applications.

But Microsoft is keeping its eye on an even bigger prize: seeding the market with ActiveX components before rival Java applets take hold.

Microsoft licensed 40 independent software vendors to integrate its Visual Basic programming system, Applications Edition Version 5, into future versions of their applications.

The list of participating vendors ranges from Great Plains Software, Inc. to Adobe Systems, Inc. and Texas Instruments Software.

That means information systems managers who buy packaged software, such as Great Plains Software's accounting application, can customize it to fit their company's needs by using the Visual Basic development language. Before, developers often had to know C++, which is more difficult to learn and less widely used.

Trainer Dan Mezick says the licensees will help seed ActiveX

"Microsoft is really pushing ActiveX with this [Visual Basic] move," said Dan Mezick, chief instructor at New Technology Solutions, a Visual Basic training company in North Haven, Conn. Visual Basic "serves as a socket for ActiveX controls ... so licensing [it] is a great means to getting ActiveX out there."

Visual Basic for Applications, the part of Visual Basic being integrated with third-party packages, can communicate with ActiveX components.

The Visual Basic Control Creation Edition, which will come out as part of Visual Basic 5, is specifically designed to enable developers to build ActiveX components.

Chill out.

ACTIVEX OPPORTUNITIES

Robbie Wright, Visual Basic business manager at Microsoft, estimated that the 40 licensees had the potential to generate tens of thousands of new ActiveX components.

Vendors want corporate developers to be able to easily customize and manipulate their software, so they are increasingly building it with components. Microsoft wants those reusable chunks of software to be ActiveX rather than Java applets, which are gaining in mind and market share.

"The primary reason Visual Basic is being licensed is to induct the entire world into [Visual Basic] development," Mezick said. "Microsoft, from day one, has gotten pressure to license [Visual Basic]. It's happening now because of competition from Java."

Evan Quinn, an analyst at International Data Corp. in Framingham, Mass., said the licensing agreement will spread Visual Basic and ActiveX, but it also should be a boon to IS managers, who won't need to have their Visual Basic-proficient developers learn another language.

"It actually does some good," Quinn said. "If you're supposed to customize a packaged application, you don't need to learn 14 different tools. You can learn [Visual Basic applications] and off you go. You can be productive."

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NetWare	☑	☐
IBM AIX	☑	☐
IBM/MVS	☑	☐
OS/2	☑	☐
Digital OpenVMS	☑	☐
Sequent DYNIX/ptx	☑	☐

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Prudential deal blasted

CONTINUED FROM PAGE 1

and "noncommittal," according to insiders.

Relocation "has been a real concern because [ISSC] hasn't finalized a [New Jersey] site yet," said Friel, who expects IBM to make a decision "very soon." As for employee angst, Friel described communications with employees as "open and positive." Employee fear during outsourcing "is a normal situation," he said.

"You can't always say that five years down the road an outsourcing vendor [will] be able to guarantee work for X number of people."
– Suzanne Kurad, Gz Research

The 900 affected employees in northern New Jersey, Jacksonville, Fla., and Minneapolis will be relocated to ISSC facilities "in the same geographic location they are in today," Friel said.

■ Employees in the legacy maintenance area claimed they weren't able to transfer within Prudential for the past year after a hiring freeze was put in place. Now, outsourced employees worry they will be stuck working on legacy systems during their ISSC tenure.

Friel said no such freeze was in place and asserted that employees will have an opportunity to "grow their skills." Friel and Prudential human resources executives didn't cite specific retraining programs that were planned.

Affected IS staffers at Prudential may not necessarily be locked into legacy systems work at ISSC, analysts said.

By moving to a vendor whose core competency is information technology, outsourced employees often end up with more opportunities, said Suzanne Kurad, an analyst at Gz Research, Inc. in Mountain View, Calif.

■ Lack of communication from top managers has been a problem: Outsourcing rumors swirled for six months before the deal was announced in September. Prudential senior managers didn't inform employees of the deal until the day before it went public. Friel said the insurer was trying to keep from upsetting its staff, particularly if the deal didn't go through. "This is not the type of [thing] you want to communicate," he said.

■ IS staffers said Prudential restructured its severance pay guidelines the week before the ISSC contract was signed, leaving affected employees suspicious that they were being primed for downsizing.

George Myers, a human resources vice president at Prudential, said the company was merely "restating" its severance policy at the time and called the timing of the announcement "coincidental." The severance restatement didn't affect employees because no one was being fired, Myers said.

The severance option to outsourced employees "is not a rule and is up to the culture of the company," said George Logeman, an analyst at The Yankee Group in Boston.

Outsourcing experts said it is common for employees to get six months to a year of guaranteed employment with an outsourcing vendor, but, as for severance pay, that isn't a hard-and-fast rule.

"You can't always say that five years down the road an outsourcing vendor is going to be able to guarantee work for X number of people," Kurad said.

• Vertical marts seek 'net security

IBM announces electronic commerce tools, services

By Stewart Deck and Mitch Wagner

IBM LAST WEEK made a raft of announcements to back up its theory that the Internet's future lies in secure, smooth-running electronic commerce and information clearinghouses, not interminable browser wars.

Companies want ways to establish secure commerce links and to collaborate, said Tom Patterson, chief strategist for electronic commerce at IBM. "They need ways to establish what were once called 'unholy alliances' but are now called 'agile partnerships,'" he said. "They need to [both] compete and collaborate in many cases."

More tidbits from the IBM table

- → A prototype cyberphone for wireless Internet access
- → Java-enabled 3-D Internet commerce application
- → A dozen retailers added to its Web-based World Avenue shopping mall service

THREE MODELS

Specifically, IBM sketched out Internet plans for three industries: Insure-Commerce for the insurance industry, Energy Network Exchange for electric utilities and PetroConnect for the petroleum industry.

"The successful model for electronic commerce is to apply strategies to vertical markets that can derive immediate benefits," said Chris Stevens, an analyst at Aberdeen Group, Inc. in Boston. "IBM can bring services and product combinations to vertical markets that nobody else can." Through Insure-Commerce, IBM will provide consulting services — including World Wide Web site services, intranet development, technology strategy and business development — and software tools to insurance companies.

New England Mutual Life Insurance Co. in Boston is the first to sign on.

"As the financial services industry converges and new competitors enter our markets, we plan to support our agent advisers with advanced technologies and ... an array of products and services," said Robert Shafto, chairman and CEO of the insurance company.

"It's going to be a matter of survival," Shafto said. "It's a market-share fight we're in, and we think [this technology] gives us a significant advantage over our competitors."

The Energy Network Exchange will allow electric utilities to use the Internet to sell excess electricity.

"It's too bad you can't see me grinning," said Jeff Geltz, manager of information services at New England Power Co. in Westboro, Mass. "It brings credibility to the whole effort of utilities using the Internet for commerce, the fact that someone that big would be interested in getting involved with it."

Scott Albro, an analyst at Gz Research, Inc. in Mountain View, Calif., said IBM is "especially good at moving enormous amounts of data, and this is a data-heavy problem."

PetroConnect was designed to be a secure, dial-in Internet site for petroleum exploration customers to exchange geologic and satellite information, seismic data, maps and surveys.

Chevron Corp. already uses an Internet-based network to communicate with business partners and sees the benefits, said Kevin Hickman, a senior systems analyst at Chevron in San Francisco. "It's one thing for me to sit and describe to you my interpretation of data; it's another thing for you to get the data and draw your own conclusions," he said.

IBM software links Java browsers to mainframe

By Tim Ouellette

IBM LAST WEEK released beta-test software that lets Java-enabled browsers access mainframe data.

The Host-On-Demand software lets World Wide Web browsers link to a traditional 3270 Telnet emulation session, but the browsers get data in the nontraditional form of Java applets. Users can access mainframe data as is, without having to translate it into browser-friendly Hypertext Markup Language (HTML).

"There is a tremendous amount of interest in doing this," said Cindy Borovick, an analyst at International Data Corp. in Framingham, Mass.

But mainframe users are just beginning to consider this option. "We are just getting to the point now where we are starting to think about something like this," said Douglas Mackie, vice president of megacenter operations at Zurich Insurance Group in Schaumburg, Ill.

BROWSING BIG IRON

Host-On-Demand provides these functions to Java-enabled browsers

- Emulation on demand
- Customized 3270 windows
- Multiple sessions
- Persistent connections
- Telnet security options

Host-On-Demand is an add-on to IBM's Communications Servers, which act as gateways between the mainframe's SNA protocol and the TCP/IP protocol used over intranets and the Internet.

COST REDUCTION

Although users can access the data without additional programming, there will still be a need for development tools that display the data to users, either as a 3270 screen or a graphical user interface.

For example, an airline might want to give Web users access to flight schedules maintained on the mainframe, without forcing them to move through traditional 3270 emulation screens.

But the software, which will be added to IBM's Communications Servers at no extra cost by early next year, holds promise for cutting software distribution costs, according to Borovick. Users could avoid having to constantly install and maintain emulation software on PCs by putting a browser on every single desktop.

Apertus Technologies, Inc. in Eden Prairie, Minn., and Simware, Inc. in Ottawa offer similar products that do 3270-to-HTML conversion instead of using Java.

Attachmate unveils connectivity software for Win 95 and NT. See page 45.

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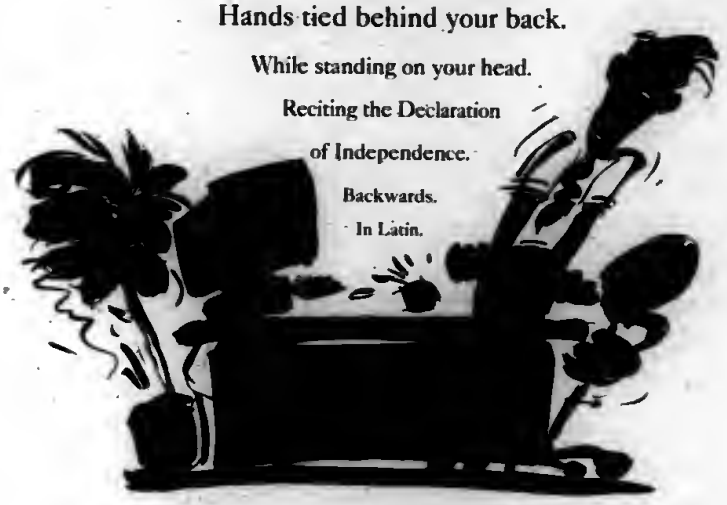

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Storage management boost

▸ *EMC announces it will add mainframe features to Unix systems*

By Tim Ouellette

EMC CORP. this week will announce storage management software for those who use the company's open systems storage products.

Symmetrix Manager for Open Systems automates management tasks for EMC's Symmetrix 3000 and 5000 storage subsystems.

Although Hopkinton, Mass.-based EMC already offers similar software for the mainframe, users can now run the package off a variety of Unix servers.

A recent study by Find/SVP, Inc. in New York found that most information systems managers say they lack management tools to properly deal with the growth of distributed, enterprise servers.

As a result, users such as Phil Orton, director of centralized operations at Entergy Corp in New Orleans, say the new tool will help them squeeze better performance out of their disk drives at less cost.

"These boxes are nothing but very large special-purpose computers with disk drives hung off of them," Orton said. "Now they [EMC] are building applications on top that we can fully exploit."

VIEW TO THE NETWORK

For example, data center managers can see that within a certain time frame, response time to an SAP R/3 application degrades severely, said Carl Greiner, an analyst at Meta Group, Inc in Stamford, Conn.

The managers then can allocate more cache to get better performance from that specific data set.

"This is common in the mainframe area but lacking in the open systems world," Greiner said.

Users previously had to settle for basic management software or turn to ad hoc consulting support from EMC.

But with users shifting critical applications off the mainframe, there is an increased need for tools to centrally manage and back up data stored in Unix systems, according to analysts.

EMC competitors IBM in Armonk, N.Y., and Storage Technology Corp. in Louisville, Colo., are working on similar efforts.

IBM is selling a more-generalized management tool called Adstar Distributed Storage Management, and StorageTek is developing a Unix version of its Central Archive Manager.

"We used to look to IBM for standards [in storage tools]," Orton said. With EMC, "that discussion no longer takes place," he said.

Symmetrix Manager for Open Systems is available now and costs $7,500.

MORE TO STORE ON THE MIDRANGE

	1995	1996*	1997*	1998*	1999*
Mainframe disk-array revenue	$4.2B	$4.5B	$4.3B	$3.9B	$3.7B
Midrange/ network disk-array revenue	$5.4B	$7.8B	$9.7	$12.1B	$14.7B

Source: Disk/Trend, Inc., Mountain View, Calif.

DATA MANAGEMENT

NT opportunity sparks vendor partnerships

By Matt Hamblen

SEAGATE SOFTWARE will team up with Wang Software and Microsoft Corp. to simplify storage management for Windows NT 5.0, which is due next year.

Today's announcements are supposed to provide a more open and flexible data storage management environment, according to the vendors. Users will be able to share storage resources — whether they are disks, optical discs or tapes — among multiple servers with different applications. It will also be easier for users to connect storage technologies to their networks, and there will be a standard way to manage bulk-media libraries and drives.

"NT will be a bigger part of our growth, and these partnerships are important," said Steve Davis, a senior networking engineer at Rohm and Haas Co. in Philadelphia. "We're looking for ... really robust operations [that serve] decentralized systems with centralized management."

Analyst Michael Peterson, president of Strategic Resources Corp. in Santa Monica, Calif., said the storage management improvements will help make Windows NT 5.0 more mission-critical for organizations than Windows NT 4.0. Windows NT trails Unix, which has directory services, a file system, a clustered file system and mirroring.

Wayne Stein, project manager of GM Access at Electronic Data Systems Corp. in Detroit, said information systems is "always fighting with the need to grow more with storage."

As for what the next NT product can provide, he said, "many tools exist today, but it's the ease of use that matters."

Davis helps manage a Rohm and Haas network that requires instant access to data for customer service representatives who answer calls from around the world 24 hours a day. Its network includes 200 Novell, Inc. NetWare and 100 Windows NT servers, but NT promises to grow, Davis said.

HIT LIST

Seagate, in St. Mary, Fla., is the largest supplier of backup and storage management applications for Windows NT. Its announcements will include the following:

- An agreement to work with Microsoft on storage management code for Windows NT 5.0. Both companies have partnered on Windows NT since 1991.
- A deal with Wang Software in Boulder, Colo., to co-develop and license hierarchical storage management software for Windows NT 5.0.

• Battle with Compaq begins

Digital targets low-end server space

By April Jacobs

DIGITAL EQUIPMENT CORP. this week will make a credible bid to compete with industry leader Compaq Computer Corp. in the low-end server market, analysts said.

Digital plans to introduce its Prioris HX 6000 server — which features an Intel Corp. Pentium Pro chip and ServerWorks management tools — to do battle with Compaq's popular ProLiant servers.

The Prioris HX 6000 will compete well against Compaq for the low-end workgroup or regional office market, said Lenny Pitts, an analyst at Technology Business Research, Inc. in Hampton, N.H. The Prioris HX 6000 is the big sister to the company's HX 5000, which features 133- or 166-MHz Pentium processors and 512K bytes of shared cache.

HIGH AND LOW

"They've been into Intel-based servers all along, but Digital's strategy on the server is two-pronged, with Alpha on the high end and Intel on the low end," Pitts said.

He said price points for the Alpha-based servers are still too high to sell very competitively in the low-end market.

Feature by feature, the Digital and Compaq offerings are very similar, although Digital's machine supports slightly more cache memory, he said.

PRIORIS HX 6000 SERVER

- **Processor: Single or dual 200-MHz Pentium Pro**
- **Cache: 512K or 256K bytes**
- **Price: $6,000 to $10,000**

Other competitive features of the Prioris HX 6000 are hot-swappable drives and, maybe most important, the ServerWorks bundle of management tools. ServerWorks includes a "quick launch" feature to speed up the process of installing any of the major operating systems. For example, the Windows NT 4.0 installation tool allows for setup in less than 20 minutes, Digital officials said.

Similarly, Compaq's ProLiant 2500 comes bundled with Insight, Compaq's server management suite.

Digital has to "convince the users that Digital's ease of setup is as easy as Compaq's. They've been working a long time on the ease of use and service, so Digital really has to get out there and make its market presence known," Pitts said.

LEVERAGE

Chuck Barney, a senior analyst at Workgroup Strategic Services, Inc. in Portsmouth, N.H., agreed that the key battleground is in management tools.

"A buyer of the ProLiant server has access to multivendor network management, and Digital also happens to have a very capable network management suite," Barney said.

"Vendors need to have some sort of lever to get in front of the end user so they can come in and say, 'Not only do we have all the bells and whistles, but we can manage the multivendor setup you have,'" he said.

The Prioris HX 6000 also has 11 I/O slots, six EISA and five Peripheral Component Interconnect slots, 6GBytes internal and 1TBytes external storage, 11 drive bays and integrated Fast Ethernet.

The Prioris HX 6000, with a single or dual 200-MHz Pentium Pro, will be available Nov. 22. The cost of typical configurations ranges from $6,000 to $10,000. For an additional $995, support is available for Digital's Clusters for Windows NT. That allows for clustering of two servers so if one server fails, the other will step in.

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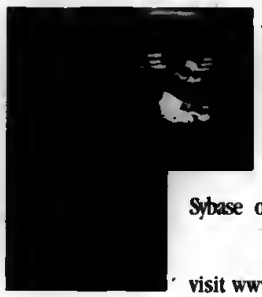

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FRAME-RELAY ACCESS DEVICES

Sync winnows its line

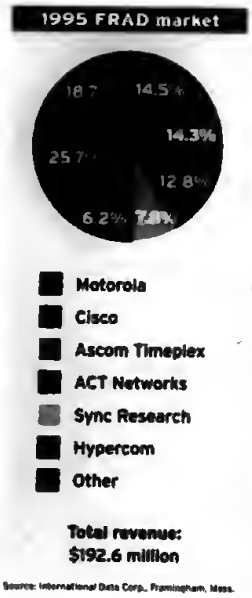
By Bob Wallace

SYNC RESEARCH, INC. last week confirmed plans to phase out three models of its popular frame-relay access device (FRAD) line, a move that analysts say could chew up resources and budget plans for the 150 users of the devices.

Sync is phasing out its FrameNode 100, 200 and 400 devices, which link LANs and other devices to frame-relay links, because it has developed more powerful, feature-rich models that cost slightly more, a company spokesman said.

The vendor said the software in the older models can be used in Sync's latest models, such as the FrameNode 4200. The FrameNode 100 has a $1,495 base price, and the more-robust 420n starts at $1,995.

But there is more than just a pricing aspect to this multiproduct phase-out.



"Users who want to begin using the newer models may need additional training on the new boxes and will have to provide support for two product lines instead of one," said John Morency, a principal at The Registry, Inc., a consulting and research firm in Newton, Mass.

"And since FRADs are largely remote site boxes, information systems managers will need to dispatch staff to scores of branch offices — sites that usually don't have on-site staff — to install and configure the new boxes," he said.

Information systems managers who decide to migrate to the newer Sync FRADs need to ensure that the transition doesn't disrupt the operation of their existing corporate data networks. The older FRADs will be available on a limited basis with longer delivery times to current customers.

UB eases ATM management

By Patrick Dryden

THIS WEEK, UB Networks, Inc. in Santa Clara, Calif., will help users of its internetworking gear migrate to Asynchronous Transfer Mode (ATM) networks by simplifying management of ATM's fast switched circuits.

ATMView automatically discovers and displays the layout of ATM networks, including the Ethernet and Token Ring LANs emulated by ATM connections. ATMView lets operators monitor traffic, faults and performance from two network management platforms: UB's NetDirector or OpenView from Hewlett-Packard Co.

"As we get into ATM technology, ATMView looks like the easiest way to go," said Dan Howard, MIS director at Express Scripts, Inc. in St. Louis.

Express, which processes pharmacy benefits claims, is testing an ATM network for high-speed transfer of large files. The complexity of setting up ATM circuits can take time and introduce errors, Howard said.

Because ATMView supports many management standards defined by the ATM Forum, Howard said he expects to add another vendor's low-speed ATM switches to the edge of his network and manage them, too.

GOOD STEP

Although ATMView focuses on UB's own switches, it also can support third-party devices. That is a step in the right direction because open standards are still emerging for ATM networks, said Greg Howard, an analyst at Infonetics Research, Inc. in San Jose, Calif.

"ATMView will let us configure the network from end to end by a drag-and-drop interface."
– Dan Howard, Express Scripts

"In the ATM world, you're still stuck with a single vendor to build and manage your network," Howard noted.

ATMView will ship next month for $3,995 for Sun Microsystems, Inc.'s Solaris Unix and Hewlett-Packard's HP-UX. Windows NT support is scheduled for early next year.

Banyan works to stop migration to Exchange

▸ *Will unveil E-mail system that integrates Vines messaging with NT*

By Tim Ouellette

BANYAN SYSTEMS, INC. is trying to keep Scott Tannen, and its 3.5 million other Vines E-mail users, from migrating to Microsoft Exchange Server on Windows NT.

Tannen, manager of network engineering at Babson College in Wellesley, Mass., said the school is moving from Vines to Microsoft Corp.'s Windows NT Server for much of its application hosting needs. But no decision has been made on electronic-mail migration.

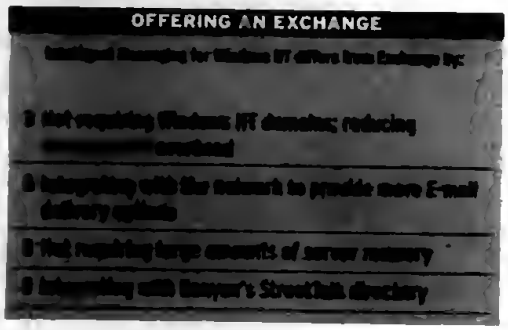
So Westboro, Mass.-based Banyan this week will unveil Intelligent Messaging for Windows NT, a client/server E-mail system that integrates with existing Vines networks and Banyan's popular StreetTalk for NT directory.

THE BEST OFFENSE

The move seeks to keep mixed Vines and NT shops — now a large chunk of Banyan's user base — from choosing Exchange for E-mail.

Banyan is touting its simpler setup, administration and integration with the existing network compared with Exchange (see chart).

"We want to make [Intelligent Messaging for NT] a viable path to really support both environments," said Rob Abbott, a computer specialist at the Food and Drug Administration in Rockville, Md.



The FDA has been running Vines on its network for the past six years, and although the agency moved applications to NT Servers, it wants Vines to continue to handle the networking duties, he said.

The combination of StreetTalk and E-mail on Windows NT is a strong pull for Vines users who don't trust NT's complex domain configurations.

Many Vines installations have constantly said the port of StreetTalk to Windows NT is a major reason they remain with a Vines network environment while adding some NT servers into the mix.

Intelligent Messaging for Windows NT is a port of the current 1.1 version of Vines. Banyan has also added Messaging Application Programming Interface (MAPI) 1.0 support.

The software will ship this month for $1,495 per server. The server can be accessed from any MAPI-compliant client, such as Banyan's own BeyondMail or E-mail client found in Windows 95.

Novell offers free directory licenses, will license NDS for Sun's Solaris

By Laura DiDio

NOVELL, INC. last week made two announcements aimed at unbundling and leveraging its Novell Directory Services (NDS) Database.

In a bid to attract more developers to the NDS platform, Novell said it will provide software developers with free source and distribution licenses.

Novell also ended a year of suspense and finally committed to a ship date for NDS on the Microsoft Corp. Windows NT Server platform. "It will ship by mid-1997 with full native TCP/IP support," said Michael Simpson, director of marketing in Novell's Internet Infrastructure Division.

At the same time, Novell inked a high-profile alliance with Sun Microsystems, Inc. that calls for Sun to license NDS and make it available on Solaris. SCO, Inc. has signed a similar deal to make NDS available on its SCO version of Unix.

Additionally, Novell will license Sun's Java WorkShop development environment.

Users and analysts said the moves were crucial to Novell's efforts to push NDS beyond the NetWare installed base.

"We're very encouraged to see that NDS is becoming widely available on Unix-based platforms like Solaris and on Windows NT. This will provide us with simpler access, administration and development for heterogeneous networking systems," said Stan Ratcliffe, vice president of Electronic Data Systems Corp.'s Client/Server Group in Plano, Texas.

But analysts cast a more pragmatic and critical eye on the Novell licensing deals.

Tom Kucharvy, president of Summit Strategies, Inc., a consultancy in Boston, said the initiative with Sun is essential in order to jump-start third-party NDS development efforts. But he claimed Sun's endorsement of NDS "was lukewarm at best."

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Oracle thins down key graphical tool

By Sharon Gaudin

FIRST THERE WAS Diet Pepsi, then fat-free potato chips and low-fat cookies. Now Oracle Corp. is joining the lighter-is-better trend with a slimmed-down version of its top software development tool.

The database industry powerhouse this week releases Oracle Database Designer, a lightweight, graphical tool for building databases. The diet version of Oracle's high-end Designer 2000 tool has far fewer development capabilities but was designed to be simpler to use.

"It does things simply," confirmed Jeffrey Jacobs, president of software consultancy Jeffrey Jacobs & Associates in Belmont, Calif. "It's a very nice package for data modeling and building."

But Jacobs noted that simplicity could also be seen as a drawback. "It's a single-user tool, so it's only good for individuals ... there's no teamwork with this one," he said. "It's simple, but this isn't for the large corporation."

"My customers aren't looking for this because they're doing large-scale projects," Jacobs explained. "I certainly see people getting confused, but I don't see them wanting to thin down."

LIGHT TOOLS SOUGHT

But Dick Heiman, a research manager at International Data Corp. in Framingham, Mass., said many companies are looking for something lighter than the big, bulky tools such as Designer 2000.

"It's an interesting strategy," Heiman said. "There are a lot of folks out there who wouldn't buy the full-blown Designer 2000 anyway. Yet this tool is compatible with Designer 2000, so if your business starts to grow, you've got a leg up."

Heiman said Oracle's new tool isn't any breakthrough. It's similar to the Erwin development tool from Logic Works, Inc., as well as Sybase, Inc.'s S-Designor.

David Fritz, manager of data warehousing at Sun Chemical Co. in Fort Lee, N.J., said the company has used Erwin for three years. "I'm not designing transactions or data-entry screens. I'm building data warehouses. A [simple tool] is more than adequate to the task."

Database Designer works not only with Oracle's namesake database system but also with Microsoft Corp.'s SQL Server, IBM's DB2 and any Open Database Connectivity-compliant database. Its main feature is reverse-engineering, which lets developers go into an existing database and change tables and columns without building a new database.

Database Designer starts shipping this week and has a list price of $995. It runs on Windows 3.1, Windows 95 and Windows NT.

Notebooks to offer videoconferencing

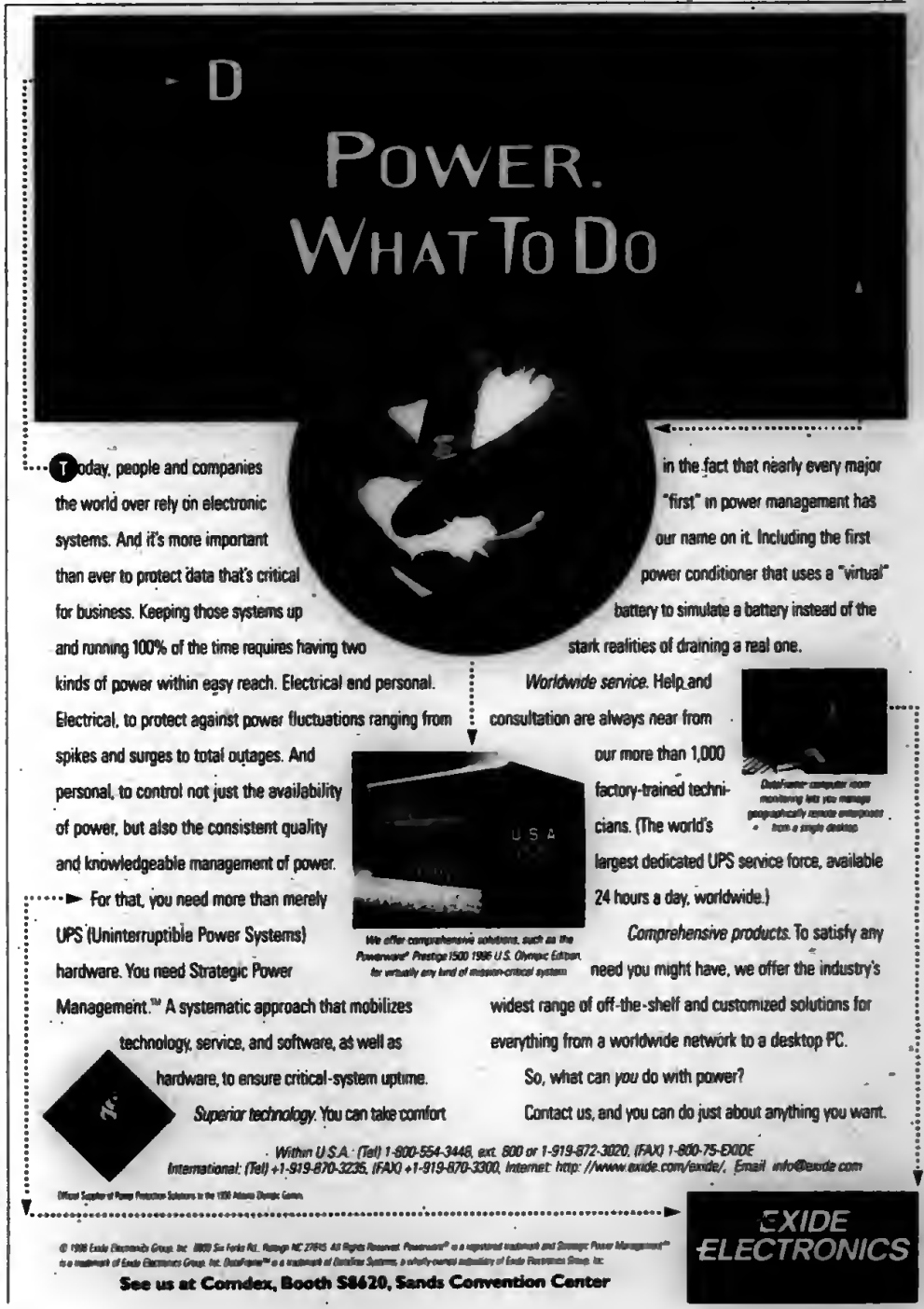
By Matt Hamblen

VIDEOCONFERENCING from a notebook computer over standard telephone lines will be available in January.

Toshiba America Information Systems' Noteworthy Business Video Phone will cost $499.

Noteworthy will include Intel ProShare Technology to provide videoconferencing for multiple users in different locations. It will be compatible with Toshiba Tecra 510 portables.

Noteworthy will include a color analog camera, a video card and video cable connectors, a CD-ROM software package and a camera clip. Sound quality will be full-duplex, for uninterrupted transmission when more than one person is speaking. The product is being demonstrated this week at Comdex.



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Intranet firewalls offer no protection against enemy within

By Gary H. Anthes

WASHINGTON

MANAGERS AND USERS of intranets have their heads in the sand if they think blocking outsiders from accessing their networks is enough protection.

That was a recurring theme at the recent IntraNetworking Summit '96 here, where users and security experts said the special security requirements of intranets are often overlooked or misunderstood.

"Just blocking everyone externally doesn't mean you are safe," said Rich Ayers, vice president of network information management at The Chase Manhattan Bank Corp. in New York. "We have 70,000 employees, and, no doubt, 99% of them are absolutely honest. But I'm sure there's a bad guy there somewhere."

Experts say as many as 80% of all computer attacks come from insiders.

Others said intranets' special requirements suggest managers should shift emphasis from protection — keeping the bad guys out — to detection and response when something goes wrong.

Toney Jennings, president of Weel-Group Corp. in San Antonio, said external threats come increasingly from sophisticated groups such as foreign intelligence agencies and industrial spies whose preferred method of information theft is to bribe employees. "The changing nature of the external threat is driving the internal threat," he said.

NOT PRACTICAL

Jennings said protecting intranets with Internet firewalls may not be practical for high-traffic intranets because many firewalls impose severe performance penalties.

In some cases, he said, it makes more sense to leave the doors fairly wide open and to rely instead on intrusion detection and incident response tools.

"You need a traffic cop vs. a roadblock approach," Jennings said. "Let the traffic flow, but shut it down if something bad happens."

The concept of a "security perimeter" is flawed, said Eugene Schultz, deputy program manager at the International Information Integrity Institute at SRI International in Menlo Park, Calif. He said companies should take reasonable precautions but assume their systems will be breached. Incident response policies and procedures are often lacking, he said.

> "Just blocking everyone externally doesn't mean you are safe" – Rich Ayers, Chase Manhattan Bank

Eli Lilly & Co. in Indianapolis has an intranet that can be accessed by 15,000 employees. But because it doesn't offer access to highly sensitive information, internal security isn't stringent. Security consists of whatever already exists — such as password protection — for applications on the intranet, analyst James Rischar said.

But external access to the intranet by employees is protected by one-time password generation smart cards from Security Dynamics Technologies, Inc. in Cambridge, Mass., Rischar said.

Ayers said some kinds of intrusions do no immediate harm and therefore don't justify elaborate and expensive blocking technology. "When something does happen, notice that it happened and have an appropriate response," he said.

Ayers said firewalls at the bank issue alerts to security officers by setting off beepers when they detect suspicious activity. "If it is coming from an internal person, we go right away and ask them to explain their actions," he said.

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Corporate Web sites given an incomplete

By Julia King

A CORPORATE HOME PAGE is nice, but companies looking to reel in the best and brightest information systems talent from university campuses need to do more.

Despite the frenzy over Internet-based recruiting, brochures remain the No. 1 job-hunting resource for students, according to a recent survey.

A study by Bernard Hodes Advertising, Inc., a New York recruitment advertising firm, found that more than 1,500 out of 1,600 surveyed college juniors, seniors and master's degree candidates had World Wide Web access.

Only 11% of those with Web access said they used the Web on a regular basis to find employment, and 56% said they accessed at lease one corporate Web site to research job opportunities.

The main criticism of corporate sites was that they lacked useful information.

"What a person really wants to know is what they are going to be doing in the first 12 months at a company. They want to know how big a group they'll be working in and whether they'll be eligible for reimbursement for more college classes," said Elizabeth Schick, a 1995 graduate of the University of Virginia who is now a software engineer at Sprint Corp.'s Business Systems Development unit in Reston, Va.

Most students with 'net access spent a majority of their time online – between two and five hours per week, on average – sending and receiving E-mail.

"A lot of times what I found [on company home pages] is they spit out basic, standardized lines. If there's a college-graduate training program, there's one paragraph," Schick said.

Since joining Sprint, Schick has created a home page for her group that has detailed employment information and links to Sprint's main corporate home page.

WHAT STUDENTS WANT

Specific features surveyed students wanted to see include job descriptions, lists of available positions and staff profiles. They said to forget the fluff and cliches such as "people are our most important asset."

Several hiring managers said they regard a company home page as just one of many tools they need to snag highly sought-after technical talent.

"Our business is so competitive that you need every [recruitment] tool you can get your hands on," said Don Batsford, director of human resources at BBN Planet, an Internet services firm in Cambridge, Mass.

"But for new grads, we're not being overwhelmed with [electronic-mail] responses or replies to postings on the Internet," he added.

Videos, computer disks and interactive media are other recruiting tools that don't seem to have much impact on college students.

For example, of students who have CD-ROM drives, 57% said they never use them. The other 43% use them primarily for entertainment.

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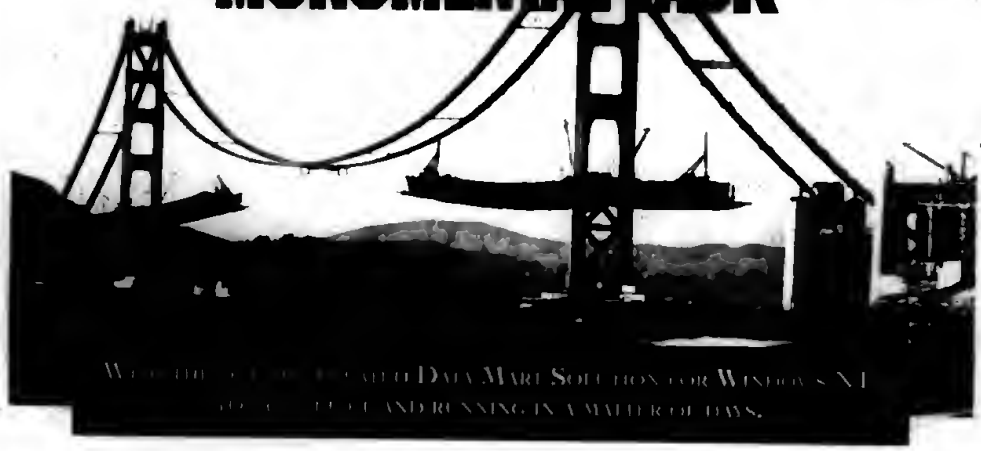

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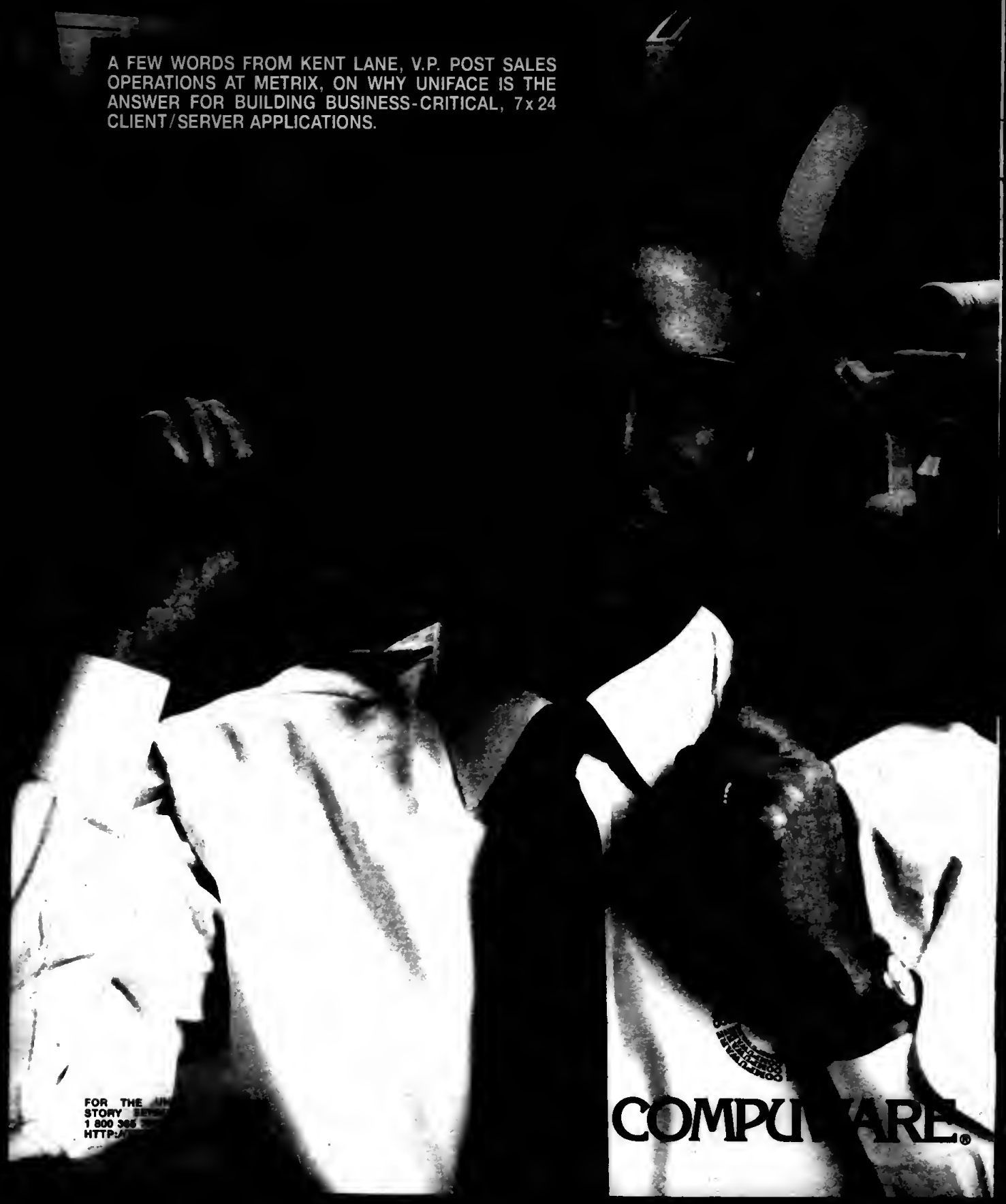

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UNIFACE *WHAT THE BIG GUYS USE*

Asset management can control PC costs

By April Jacobs

DESPITE THE HYPE about supposedly cheaper-than-PC network computers, users may find that the best way to reduce desktop costs is through tighter management of existing assets, rather than an investment in new hardware.

Analysts are warning information systems managers that an accurate cost comparison between network computers and networked PCs isn't easy, since there is no hard data on the cost of as-yet-undeployed network computers.

Gartner Group, Inc. in Stamford, Conn., estimates that the total cost of ownership of the average networked PC is more than $13,000 per year, only 20% of which (about $2,700) can be attributed to the cost of hardware and software.

Almost one-third of the cost consists of technical support — an area IS managers named time and again when asked how costs are distributed.

Users said they are painfully aware of the costs of supporting networked PCs, but they aren't convinced that moving to server-centric network computers will necessarily be cheaper or give users the functionality they need.

Ray Peterson, an IS specialist at Wisconsin Indianhead Technical College, said PC support costs add up to much more than the initial hardware costs. This is mainly because of the costs of hiring technical staff, distributing software across the enterprise and networking (see related story, next page).

LIGHT WORK ONLY

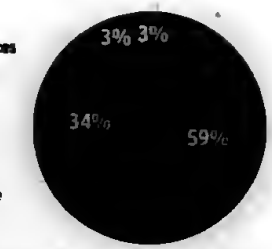
But he said PC costs aren't out of control. He said he envisions the network computer as suitable only for users who do light word processing and for those who access electronic mail and the World Wide Web.

Pompi Malik, IS manager at Mississauga, Ontario-based Brewers Retail, Inc., said costs aren't at a crisis level. He said he doesn't think network computers support enough off-the-shelf applications that his users need, such as Microsoft Corp.'s Office.

But PC support costs are pushing Kent Polzin, manager of technical operations at Simmons Co., a bedding giant in Atlanta, to consider network computers. With 15 plants throughout the U.S., Hawaii, and Puerto Rico, Polzin said too much time is spent trying to diagnose PC problems.

Steve Kleynhans, an analyst at Stamford, Conn.-based Meta Group, Inc., said PC costs such as software distribution and troubleshooting can be brought down significantly through better network management.

Having control of your organization's end-user devices would be a great help in managing your network



Base: 204 IS professionals involved in PC management. Doesn't equal 100% due to rounding.

Source: Computerworld's Information Management Division, Framingham, Mass.

USERS CONSIDER THE NETWORK COMPUTER

"We could make a business case for a network computer that booted up to a Web page, eliminating the need to generate memos. That would pay for itself and the cost of the printed manuals alone."

THOMAS BRIDGES, A NETWORK ADMINISTRATOR, INTERNAL REVENUE SERVICE, AUSTIN, TEXAS

"Not only do businesses have too much money invested in PCs and the applications that run on them, but they are part of the user's consciousness and psyche. Users simply don't want to cede control of their desktops to the network administrator – no matter how appealing that sounds to management."

ISAAC UMASI, PRESIDENT, TECH-TEACH INTERNATIONAL, INC., ARLINGTON, VA.

"It won't replace PCs because too many people make too much good use of the peripherals they have locally. How do you set up printing support? A large segment of the user population has already climbed the technology bar."

FRANK MANCI, NETWORK/TECHNICAL MANAGER, COLONIAL SAVINGS, FORT WORTH, TEXAS

"We are considering network computers, but we have some real issues with them," and access charges for remote users could add up to big dollars.

POMPI MALIK, IS MANAGER, BREWERS RETAIL, INC., MISSISSAUGA, ONTARIO

Network devices

CONTINUED FROM PAGE 1

the next year. Those who plan to buy the devices said NCs could make up 60% of their desktop purchases.

The survey results and interviews indicate that IS departments are of two minds on network computers. They like the concept but are afraid to make yet another major change in their infrastructure.

OWNERSHIP ISSUES

"This is not the *Outer Limits*. People won't willingly give up control of their desktops," said Bill Sheehan, a senior technical support specialist at Stone and Webster Engineering Corp. in Boston.

Corporations say office desktops are business resources that belong to the company, but Sheehan and others noted that most users view their PCs as personal machines.

"Users want to customize and control their PCs, set up their own wallpaper, use personal productivity tools and, yes, play games," Sheehan said.

Dan Schuffert, a senior systems programmer at Stone Container Corp., a paper manufacturer in Chicago, said he will implement a "kick-the-tires" pilot network computer-based network within the next three to six months. Stone Container has more than 30,000 PCs nationwide.

But Schuffert said the firm probably will install the network computers on its shop floors and in industrial areas, where use of PCs is now limited.

Ray Peterson, an IS specialist at Wisconsin Indianhead Technical College, plans to beta-test IBM's Network Stations beginning next month. "From our standpoint, we end up putting PCs on a person's desk for E-mail, Web access and word processing," he said. "And that's very expensive."

The renewed interest in a different kind of desktop device is the third time in 10 years that diskless PCs have slipped into the IS spotlight.

This time around, they aren't dumb terminals or Unix X terminals, but low-cost 'Internet/intranet access devices that can run a World Wide Web browser and access Windows-based applications. Prices start at $500.

As they weigh this emerging option, several users said network computers are more likely to enter their shops as replacements for legacy X terminals and dumb terminals.

"I'm not betting my job and the company's money on something that could be a fad. You have to be very sure before you change your entire network setup," said a bank IS manager who requested anonymity. "We're nowhere near that point with [network computers] yet."

Other users, such as Richard Schell, vice president of IS at ABC Television Network Group in New York, are even more skeptical.

Network computers "aren't really applicable in our environment, where at any given time, 20% of our staff is mobile or reroute," he said.

NOT SERIOUS YET

Wayne Stein, project manager at Electronic Data Systems Corp. in Detroit, said his firm is "nowhere near serious" about net-

While hype fuels debate, IS managers sort it out

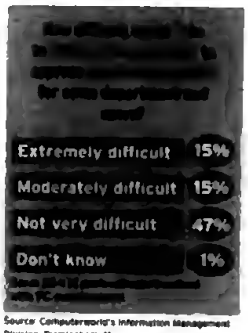
▸ *Early users find place for network computer*

By Mindy Blodgett

AMID A STEADY barrage of hype, information systems managers are trying to assess how network computing devices will affect corporate computing strategies.

Will the diskless desktop computers really save users money? Or will the need for extra server strength actually increase costs? What is their impact on mobile computing?

The answers are still coming, but according to early adoptees of the network computer, there are strong reasons to buy them.



Source: Computerworld's Information Management Division, Framingham, Mass.

LOWER COST COUNTS

First, network computers range in price from $500 to $1,500, which is approximately half the cost of high-powered PCs.

Zona Research, Inc. in Redwood City, Calif., conducted a study for Wyse Technology, Inc. in which it looked at a 15-user configuration on a Windows NT-based server. Greg Blatnik, an analyst at Zona Research, said the network computer-based setup would cost $94,368 vs. $217,663 for a PC.

Although Zona did the study for Wyse, users of Wyse's WinTerm device have reported savings in line with Zona's conclusions, including Jacklin Seed Co. in Post Falls, Idaho. The company saved $15,000 to $20,000 by buying 40 WinTerms, which cost less than $1,000 each, compared with buying 40 Gateway 2000 PCs, IS manager Keith Nelson said.

MAINTENANCE SAVINGS

"And that doesn't include all the IS time on installation, software upgrades and all that administration stuff that goes along with PCs that you don't have with these terminals," Nelson said.

Some users said they hope network computers will simplify the budget process.

"It is a fixed cost. We can say for this amount per head, users get electronic-mail and World Wide Web access," said Thomas Bridges, a network administrator at the Internal Revenue Service in Austin, Texas.

Other users — particularly large shops — are more hesitant. They worry that network computers bring new cabling problems and the need for bulkier servers.

And because the machines don't support local printers, LANs would have to completely support all printing needs.

This could overwhelm already overloaded network administrators.

Mobile computing is another issue. With the fat-client, distributed model of computing, laptop computer users keep a lot of information on their powerful notebooks. With the thin clients, popular systems such as laptop docking stations would be phased out.

"We have a lot of mobile users, and just getting them connected back to the office is a continuing challenge," said Doug Moran, an IS analyst at CRSS Constructors, Inc. in Denver. "Those people rely on their laptops, and I don't see how network computers fit into that scenario."

"We have several workers that are mobile and only five laptops that are moved around among them, and four of those are in constant use," said Claudia Burmeister, MIS manager at Geiger Brothers, Inc. in Lewiston, Maine. "Moving to [network computers] would seem like a huge step backward for them and even most of our users with desktops."

WHAT ABOUT WINDOWS?

Also at issue is how network computers will affect migrations to Microsoft Corp.'s Windows 95 and/or Windows NT.

Rich Finkelstein, an analyst at Performance Computing, Inc. in Chicago, predicted the devices will slow down that migration.

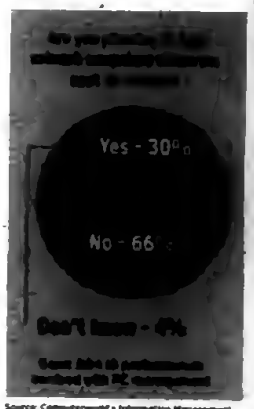
"With NT, you have data spread all over in little packages," he explained. "It is highly distributable data. But with the Internet or intranet model of network computing, with all the data centralized on a Unix or scalable boxes, you're going in the opposite direction of NT."

Blatnik disagreed.

"I don't see that people will stop needing PCs, and NT servers could support both network computers and desktops," he said.

Microsoft recently announced that its PC partners are developing the NetPC, a low-maintenance device that will run Windows desktop applications.

Senior writer Tim Ouellette and Senior editors Kim Nash and Lisa Picarille contributed to this article.



Source: Computerworld's Information Management Division, Framingham, Mass.

work computers. "Our network is designed to support fat PC clients," he explained. "But there's no way we want to take the lead on the [network computers]. Pioneers get shot full of arrows." Several users also debunked the claims that the cost of maintaining PCs is out of hand, which is one of the primary selling points for network computers.

"PC cost of ownership can get astronomical *if* you let it," said Jim Drews, a network administrator at the University of Wisconsin in Madison.

"We keep it manageable by buying in volume, and maintenance hasn't been bad," Drews explained.

WAIT AND SEE

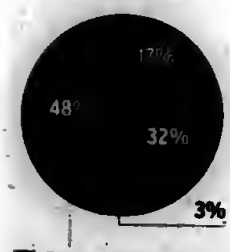
Analysts, meanwhile, are reserving judgment on whether this new class of network computers will capture more market share and mind share than its predecessors.

Steve Kleynhans, an analyst at Meta Group, Inc. in Stamford, Conn., said network computer proponents don't talk about the cost of implementing the new boxes.

"Getting there from here is not a straightforward process," Kleynhans said.

He said training costs for users and technical staff, and infrastructure changes at the desktop and network levels, could mean big bucks.

What is your view of network computers?



- They will play a niche role, but are too limiting for widespread use
- They will help solve major desktop cost and management problems
- They are no different than terminals; they shouldn't be taken seriously
- No opinion

Base: 204 IS professionals involved in PC management

Source: Computerworld's Information Management Division, Framingham, Mass.

Network computers could incite political battles

You thought the recent political season was nasty?

Just imagine the battle that would erupt if information systems tried to take away end users' PCs. Diskless network computers offer just such an opportunity, but IS isn't biting so far.

Users are ready to man the walls and battle for their computing independence — and IS knows it [CW, Nov. 11].

"If I have to take our existing network and tell people that they will be given [a network computer], they will revolt," said Mike Bailey, a systems analyst at Lockheed Martin Missiles & Space in Sunnyvale, Calif.

User concerns include the loss of desktop functionality, the security of their personal files and computer calendars, a lack of control of their own data and applications and fear that the network will be overwhelmed with complete applications moving across the wires.

In organizations where laptops are in general use, IS and users wondered whether they could do the same level of work they are used to accomplishing from the road.

IS departments appear to be heading off any internal conflicts by taking a prudent approach to the devices.

Interviews last week indicated some see the new technology as a way to give non-PC users more computing power and to replace dumb terminals with more useful machines.

"We don't want to take away the computing power we have distributed everywhere," said Steve Lopez, a network manager at the National Board of Medical Examiners in Philadelphia.

"Instead, we are looking at using a network computer for applications where taking the PC away is not an issue," Lopez said.

Some users thought the network computer actually would be a boon for the PC, once new users get a taste of what they could do on a computer.

"My guess is that this [forcing network computers on users] is a fine way of making everyone want a PC," said one user on an Internet discussion group.

Still, IS shops that are looking at network computers hold out hope that if they can prove that users will actually work more effectively with the devices, there will be acceptance among some portion of the user community.

"The majority of our users wouldn't like it at first" with network computers, said Dan Schuffert, a senior systems programmer at Stone Container Corp., a paper manufacturer firm in Chicago.

But eventually, when they see less downtime than they have suffered with PCs, users would change their minds, Schuffert said. — Tim Ouellette

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EDITORIAL

Too good to be true

It sure has been a quiet year for big news stories,

which may be why everyone has so enthusiastically latched on to the latest phenomenon, the recycled concept of diskless computers.

As Senior Editor Laura DiDio notes in her page 1 story, we've seen this train before — and it never left the station. X terminals never grabbed more than 1% of the desktop market, and diskless PCs flopped. Of course, we didn't have the Internet craze then.

The Internet and PC cost-of-ownership concerns are clearly driving the push behind network computers.

But after looking over the survey research from *Computerworld*'s research division and the information dug up by the six reporters who pulled together our Comdex report on network computers, I'm still skeptical. Even IS managers who like the concepts behind the device are quick to say most of their users will never stand for losing control over their data and applications.

And there are simply too many unknowns surrounding network computers. Sure, the up-front cost is attractively less than fully equipped PCs. But there's no way to responsibly estimate the total cost of ownership of network computers just yet. Most of the real cost of PCs lies in back-end service and support, and we don't have a clue what the back-end impact of network computers will be. How many applications can a user download and run at one time? What kind of server power will be needed to handle work now done at individual desktops? What about bandwidth needs? Can today's network management tools handle this?

Will applications have to be reworked? What happens when everyone is on the network, calling the server at significantly greater rates? Where does mobile computing — which is on the rise — fit in here?

There are definite markets for this new class of machine: low-end or new users; or specific and limited applications such as information kiosks, database access and hotel Internet access. But a serious threat to PCs? Well, if it sounds too good to be true, it probably is.

Patricia Keefe, *News editor*
Internet: *patricia_keefe@cw.com*

LETTERS

Disloyal employees are result of companies' actions

BOY, DID PAUL GILLIN hit the nail on the head with his "Hired guns" editorial [CW, Sept. 23]. Any time I change jobs or earn a new bullet on my resume, it's updated. Companies have learned to foster disloyalty among employees for the reasons you mentioned and also by not providing training and preferring to hire college grads — figuring they've been trained in the latest technologies.

> The Dilberts of the world know all the buzzwords

I have seen so many management buzzwords fly through the air that I concocted my own management philosophy: Buy the best-selling management book on *The New York Times* list. Direct the corporation to implement that strategy within two weeks. Repeat process weekly. Confuse management and employees.

I figured that I could make millions off that strategy. Alas, I never did follow through with it. Now I find that a book has been published defining management buzzwords — but the Dilberts of the world know all of those.

Ralph Hightower
Chapin, S.C.

REGARDING YOUR editorial "Hired guns," all I can say is it's about time someone put those feelings into print.

I am tired of companies treating their IS staff like second-class citizens and giving all the choice assignments to hourly contractors while leaving the loyal employees to maintain the existing systems. Their excuse is that if they train their employees in the latest technology, the employee will become a contractor. So the employee, quickly learning that the company holds no loyalty to him, trains himself and leaves anyway. Then the company laments when all its people leave and it has to hire them back at hourly wages.

At some point, these companies will realize they have been left with a legacy of systems built by people who have no loyalty to the company and who are long gone. Then they will complain that the product used was the wrong choice and that if they'd picked a different development language, everything would be OK — and the cycle will continue.

Hopefully, the people who make those decisions will read your editorial and wake up to the reality of what they're creating.

Craig Wagner
Portland, Ore.
wagnerc@teleport.com

Business success relies on the use of information

CONGRATULATIONS ON your recent article "DB2 sites pin Web hopes on Net.Data" by Kevin Burden [CW, Sept. 23]. I found the information to be extremely timely and informative.

New markets, new technology and new sources of brainpower across the globe are forcing businesses to fundamentally change in order to compete. One's success in the business world will increasingly depend on the ability to gather, process and communicate information quickly and effectively to anyone, anywhere.

Jimmy A. Castro
Austin, Texas

Distinction between internal and external nets is a fallacy

I READ WITH INTEREST Mitch Wagner's article ["Lines blur between internal, external nets," CW, Sept. 16], largely because the premise — that internal and external nets are inherently separate — is one I've never seen as true.

The Internet has always been a collection of networks, many of them internal. That is one of the reasons that virtually all long-term Internet users loathe the term "intranet." It creates an artificial demarcation between internal and external networks that has never really been there.

Internet networking technology and standards let systems be connected regardless of system type, location or administration ownership. The development of a strategic technology plan for making use of the information and making information available to the people who are authorized to use it is the key challenge and hasn't changed. Once that plan is done, the actual integration and implementation are much more straightforward.

Steve Hultquist
Founder, Worldwide Solutions, Inc.
Boulder, Colo.

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

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60. Government - State/Federal/Local
65. Communications Systems/Public Utilities/Transportation
70. Mining/Construction/Petroleum/ Refining/Agriculture
80. Manufacturer of Computers, Computer-Related Systems or Peripherals
85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
90. Computer/Peripheral Dealer/Dist./ Retailer
95. Other_____ (Please specify)

2. TITLE/FUNCTION (Circle one)
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19. Chief Information Officer/Vice President/ Asst. VP IS/MIS/DP Management
21. Dir./Mgr. MIS Services, Information Center
22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr., Tech. Planning, Administrative Services
23. Dir./Mgr. Sys. Development, Systems Architecture
31. Programming Management, Software Developers
41. Engineering, Scientific, R&D, Tech. Management
60. Sys. Integrators/VARs/Consulting Mgr.
CORPORATE MANAGEMENT
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12. Vice President, Asst. VP
13. Treasurer, Controller, Financial Officer
DEPARTMENTAL MANAGEMENT
51. Sales & Mktg. Management
70. Medical, Legal, Accounting Mgt.
OTHER PROFESSIONAL MANAGEMENT
80. Information Centers/Libraries, Educators, Journalists, Students
90. Other Titled Personnel

3. Dir you use, evaluate, specify, recommend, purchase (Circle all that apply)

Operating Systems
(a) Solaris (e) Mac OS
(b) Netware (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep

App. Development Products ❒ Yes ❒ No
Networking Products ❒ Yes ❒ No
Intranet Products ❒ Yes ❒ No

4. Which of the following software products do you buy, specify, recommend or approve the purchase of? (Please check all that apply)
(a) ❒ Internet software
(b) ❒ Internet browsers
(c) ❒ Web authoring/development tools

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23. Dir./Mgr. Sys. Development, Systems Architecture
31. Programming Management, Software Developers
41. Engineering, Scientific, R&D, Tech. Management
60. Sys. Integrators/VARs/Consulting Mgt.
CORPORATE MANAGEMENT
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12. Vice President, Asst. VP
13. Treasurer, Controller, Financial Officer
DEPARTMENTAL MANAGEMENT
51. Sales & Mktg. Management
70. Medical, Legal, Accounting Mgr
OTHER PROFESSIONAL MANAGEMENT
80. Information Centers/Libraries, Educators, Journalists, Students
90. Other Titled Personnel

3. Dir you use, evaluate, specify, recommend, purchase (Circle all that apply)

Operating Systems
(a) Solaris (e) Mac OS
(b) Network (f) Windows NT
(c) OS/2 (g) Windows
(d) Unix (h) NeXTstep

App. Development Products ❒ Yes ❒ No
Networking Products ❒ Yes ❒ No
Intranet Products ❒ Yes ❒ No

4. Which of the following software products do you buy, specify, recommend or approve the purchase of? (Please check all that apply)
(a) ❒ Internet software
(b) ❒ Internet browsers
(c) ❒ Web authoring/development tools

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Gigabit Ethernet: Just a gigabit oversold

Kathryn Korostoff

You're hearing a lot about Gigabit Ethernet, a next-generation Ethernet technology that promises ultrafast, 1G bit/sec. corporate backbones. Maybe you've heard that it's coming soon, that everyone will use it and that it will solve many of your most-pressing network problems.

That's what many vendors would like you to think. The truth is, Gigabit Ethernet isn't coming soon. The market data that suggests it's being widely embraced is suspect. And the networking problems it will address are limited, at least in this decade.

Some vendors say Gigabit Ethernet will be easy to implement because it's just another, albeit turbocharged, Ethernet. But if it is going to meet the heavy-duty backbone requirements of the future, Gigabit Ethernet will have to do much more than traditional Ethernet can. It will have to handle delay-sensitive traffic and unpredictable traffic patterns, for example.

Predictions of widespread corporate adoption of turbocharged Ethernet are false and misleading

When will Gigabit Ethernet really be available? The first — and I emphasize first — standards won't be set until early 1998. For now, we don't even know what the rules for data transmissions will be. We also don't know what the distance limitations will be. The last time I checked, the most common LAN cabling standard doesn't cover speeds more than 100M bit/sec.

Even if the first standards are set in early 1998, it will take considerably longer to have a full suite of standards. With more than 80 contentious vendors participating in the Gigabit Ethernet Alliance, you can just imagine how quickly decisions will be made.

Meanwhile, forecasts of widespread adoption are false and misleading. One widely quoted study claims 80% of network managers plan to evaluate Gigabit Ethernet. Sounds impressive, but the survey included only 40 network managers from leading-edge companies (the other respondents were network integrators). In my experience, leading-edge companies evaluate everything. It doesn't mean the technology is better. It doesn't mean the companies will actually deploy the technology. And it definitely isn't a reliable predictor of actual purchases.

What problems will Gigabit Ethernet solve? It will probably become an excellent choice for backbones that link multiple Fast Ethernet switches.

But the challenges that many organizations face in the next five years will require more than simply getting the fattest pipes to connect their Fast Ethernet switches. New applications such as intranets, video and voice-over-LANs will require LAN backbones that can handle multiple traffic types and unpredictable traffic patterns.

There is a technology available today that can handle this backbone traffic: Asynchronous Transfer Mode (ATM). Why wait for Ethernet to be respun, reworked and renamed?

My hunch is the vendors that lack working ATM products want to stall or divert the ATM market. We're supposed to believe that network managers are bringing their current network plans to a screeching halt because they think Gigabit Ethernet will quickly emerge as the backbone of choice.

That just doesn't make sense. Gigabit Ethernet won't be commercially viable for at least 16 months and is full of uncertainties.

Gigabit Ethernet will have an important role in linking Fast Ethernet switches, but it won't appeal to all network managers who seek solutions to their backbone problems.

Korostoff is president of Sage Research, Inc., a market research firm in Natick, Mass. Her Internet address is kathryn@sageresearch.com.

Does the Web threaten your career?

John Gantz

Until recently, I thought the last great career-threatening "paradigm shift" had already been assimilated by IS professionals. That was the migration to client/server computing — the abandonment of a lifetime's experience with the care and feeding of mainframes.

Now I think World Wide Web-based systems, or "browser/server" computing, may eclipse client/server computing faster than anyone thought. For unwary IS professionals, this may trash a few careers.

What opened my eyes was a two-day gathering of some of the nation's most advanced Web users, including BankBoston, Citicorp, Dell Computer, Federal Express, Rockwell Automation, Sandia National Labs, Time Warner, Trans Ocean Ltd. and US West. Each was a Web technology pioneer.

The first thing that surprised me was how fast Web technology was being incorporated in these companies. Trans Ocean, which had previously migrated from mainframe computing to client/server, already had 60% of its legacy applications running on intranets. Dell's Web site was originally built to help field representatives configure systems, but it turned into an entire online division within a year.

The key advantages these users saw in Web-based computing over client/server were speed of development, simplicity and rapid payback. Typical projects were up and running in less than 12 weeks. In some cases, the end-user requirements definition phase was wrapped up in a matter of hours, not months.

Many Web systems were implemented and paying off before the return-on-investment calculations were even finished. You know that well-publicized Federal Express package-tracking application? It took less than two months from conception to completion.

By using desktop browsers, these users were also able to cut the client-side costs of business applications to almost nothing. At Citicorp, a treasury application supporting operations in 100 countries had an original cost estimate of $1 million using client/server technology. But it was implemented using Web-based technology for less than $50,000.

But lurking amidst the success stories were tales about the role — or lack of it, in some cases — played by IS departments. Some of the attendees were chief information officers. But more were from end-user departments and told tales about how they had to fight tooth-and-nail with their internal IS departments in the early days of their Web projects.

Browser/server may eclipse client/server faster than anyone thought

Eventually, most of the companies forged working relationships among their webmasters, user departments and IS groups. But over meals and cocktails, there were more war stories about IS relations than about getting Java to work.

What does all this IS-bashing mean? It means we need a new kind of IS professional — one whose job is to take risks, break traditions and tear down the walls around corporate information. The new IS professional must think every minute of every day about serving customers and making money via technology.

This is a tall order. The dilemma was put quite succinctly by one IS attendee: "We found we had to let users write their own applications. It has produced a lot of bad code, but it's also produced a lot of cost savings, productivity, revenues and happy customers."

This is a new mind-set. I smell change in the wind.

Gantz is a senior vice president at International Data Corp. in Framingham, Mass. His Internet address is jgantz@idcresearch.com.

COMMENTARY

Intel should stay paranoid

DAVID MOSCHELLA

FOR AN OTHERWISE insightful and instructive new book, it is ironic that *Only the Paranoid Survive*, which was written by Intel CEO Andy Grove, concludes with an overriding sense of complacency.

Intel's leader is one of this industry's smartest and most-respected executives. After expertly guiding the reader through 25 years of high-tech turbulence, Grove admits that although the Internet certainly feels like what he labels a "10X change factor" and a "strategic inflection point," he doesn't see how it directly threatens Intel's core business. Only network computers are described as a potential, long-shot challenge.

Grove may be right. But consider the following scenario that describes how the Internet might change global customer buying preferences in a way that could largely eliminate Intel's awesome market position by the end of the century.

Step 1. Network capacity replaces microprocessor performance as the scarce technology resource. Customers shift incremental technology investments into their networks, not their desktop platforms. Potentially major new desktop processing drivers such as image and voice recognition either fail to catch on or are handled by special processors. Probability: 70%.

Step 2. The useful life cycle for a typical corporate PC extends from three to five years. In other words, there is only a slow migration toward Pentium Pro Windows NT "fat client" desktops. The big money is spent elsewhere. Probability: 70%.

Step 3. Longer PC upgrade cycles limit the demand for the most-advanced microprocessors. This increases the viability of Intel-compatible chip vendors. Probability: 90%.

Step 4. Booming PC markets across Asia entice NEC, Fujitsu, Toshiba and/or Samsung to aggressively enter the Intel-compatible chip business. Most likely, they acquire or take control of Advanced Micro Devices or Cyrix. Probability: 95%.

Step 5. Asia becomes the world's largest PC market and is dominated by Asian vendors that use Intel-compatible chips. Intel tries to stem market-share losses by cutting prices. But Japanese and/or Korean conglomerates have sufficiently deep pockets to withstand and even accelerate price pressure. Probability: 95%.

Taken together, this chain of events would, by the early 21st century, transform Intel's microprocessor business into a commodity semiconductor market — even as total chip sales soar almost unimaginably. The likelihood of this happening can be derived by compounding steps 1 through 5 (70% x 70% x 90% x 95% x 95%) to yield a roughly 40% chance. But if the first two steps actually do occur, the probability rises to more than 80%.

Of course, even in this scenario, Intel still could be the global microprocessor leader. It just wouldn't be a virtual monopolist. On the other hand, given the huge efforts that Grove and Co. are making in communications, TV and multimedia, someday microprocessors might be one of Intel's minor markets.

Don't forget that 15 years ago Intel was basically a memory chip company. Fifteen years from now, microprocessor monopolies will have almost certainly vanished. What should Intel be then? Now that's something to be paranoid about.

Moschella is senior vice president of research at Computerworld, Inc. His Internet address is david_moschella@cw.com.

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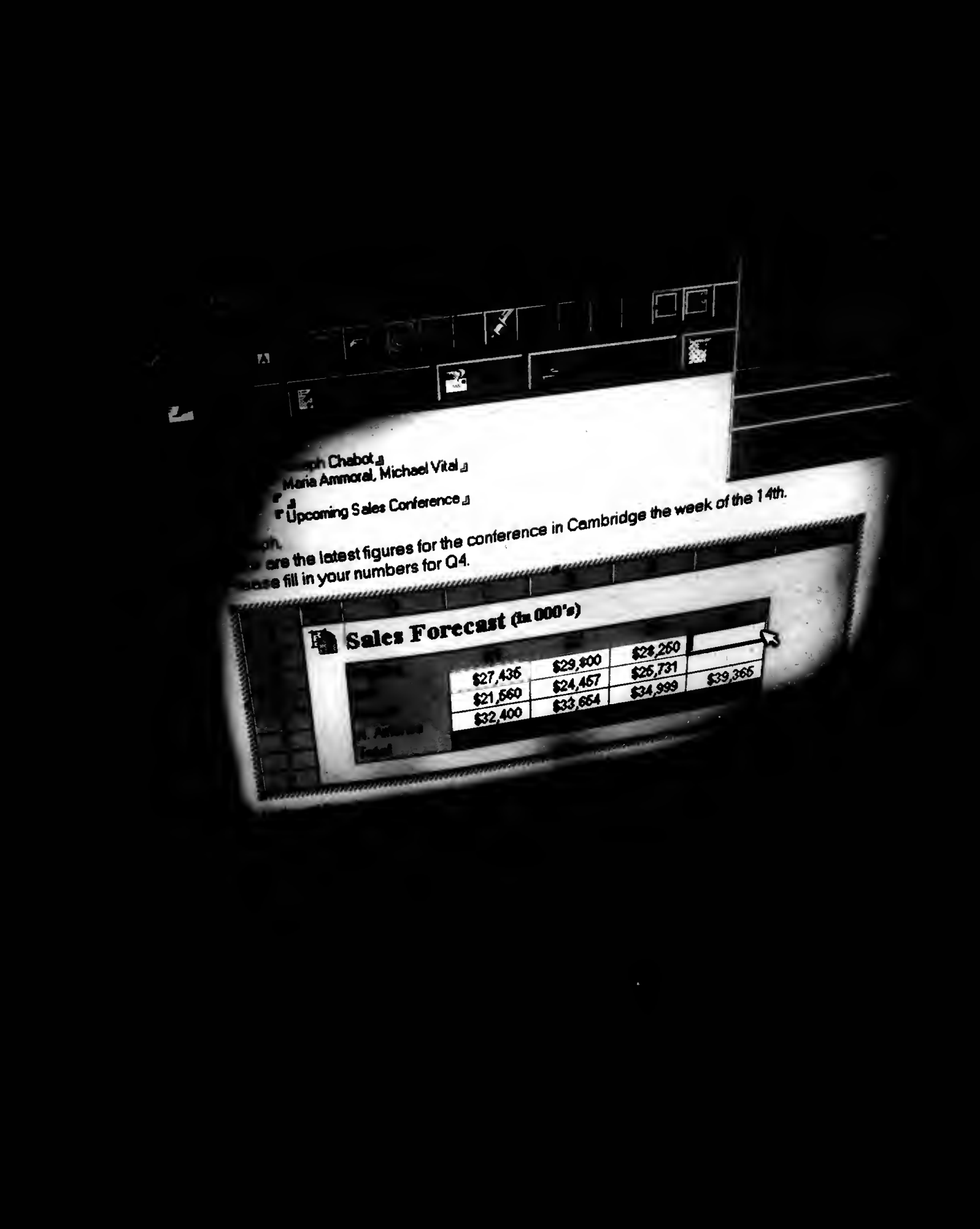
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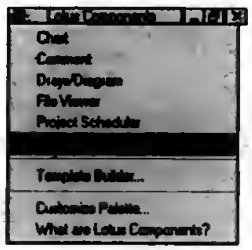

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NEC Technologies Inc.

PowerMate Pro 2200

PC MAGAZINE

NEC Technologies' DMI-enabled PowerMate Pro 2200 ($3,471 street), one of our Editors' Choice winners, has the features, performance, and comprehensive support programs to make it a great choice for corporate use. The unit is a mainstream corporate system targeted for use in financial, engineering, and software development departments. NEC includes numerous hardware and software features, such as network and system management tools, to reduce the cost of ownership and maximize system performance and security. NEC recently merged with Packard Bell to form Packard Bell NEC. NEC will continue to design and oversee the manufacturing of all of its PowerMate commercial desktop systems.

The PowerMate Pro system's tool-free mini-tower case holds an Intel motherboard with the Natoma chip set. To this NEC adds an IBM 2GB 5,400-rpm EIDE hard disk, a Matrox Millennium graphics card with 4MB of WRAM, and an NEC 8X MultiSpin 8V CD-ROM drive. The NEC MultiSync M700 monitor with integrated speakers is DCC-1 and DCC-2 compliant.

On most of our tests, the unit kept pace with the competition well, posting a score on our Winstone 32 tests that was at the high end of the average range. The unit also had average scores on the AutoCAD and C++ tests.

The PowerMate Pro supports DMI, and a MIF browser is available (although one was not sent for this roundup). Also included were MacAfee's VirusScan for NT, Intel's LanDesk and HealthMeter, CyberMedia's First Aid 95, and MagicEye security technology. MagicEye is a combination of hardware and software that detects and reports when the system is opened; it also monitors system temperature, voltages, and fan speeds. The unit also features an IrDA-compliant, 115.2-Kbps infrared interface, which you can put to work with the included copy of Puma's TranXit.

NEC covers this line with a three-year warranty; on-site service is free for the first year. On-site coverage for two more years costs $99. Augmenting its round-the-clock technical support, NEC has dedicated toll-free support lines for corporate customers, who are routed immediately to PowerMate technical-support specialists. Other service and support programs for corporate customers are available.–*BB*

PowerMate Pro 2200. Street price: $3,471. NEC Technologies Inc., Boxborough, MA; 800-632-4636, 508-264-8000; fax, 800-366-0476; www.nec.com. *Circle 470 on reader service card.*

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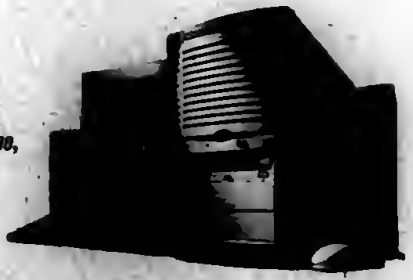

In a recent issue of *PC Magazine*, the NEC PowerMate® system won the Editors' Choice Award for Pentium® Pro processor-based PCs. In categories that included features, performance, support and price, we outclassed IBM, Compaq and Dell. For more information, call 1-800-NEC-INFO. Or visit our web site at http://www.nec.com. Better yet, simply read what the editors of *PC Magazine* wrote.

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Briefs

AS/400 goes native with Java

▸ IBM looks for wider client access options

By Tim Ouellette

TO JUMP-START INTEREST in the AS/400 as a Java server, IBM has created an early implementation of Java running natively on the AS/400.

This means the AS/400 can act as a Java client that interprets applets and as a compiler that natively creates Java applets and larger Java applications. IBM officials said the effort isn't ready for the market, though the company is tying Sun Microsystems, Inc.'s Java tightly to the future of the AS/400.

Users said they are interested in such developments, but they are still wary about how far IBM will go to support Java.

"It depends on how well they support it with tool kits, integration with the rest of the AS/400's core technology and assistance," said Dennis Lynch.

AS/400, page 45

RISC SYSTEMS

PowerPC success rests on NT, common hardware platform

By Lisa Picarille

POWERPC PROPONENTS said the RISC platform is poised to take off next year provided that several factors, including the Common Hardware Reference Platform (CHRP) and broad adoption of Windows NT, come into line.

Eric Lewis, an analyst at International Data Corp. in Mountain View, Calif., estimates that 4.2 million PowerPC machines will ship this year.

But the bulk of those systems were manufactured by Apple Computer, Inc. and a handful of Macintosh clone makers. Observers said the PowerPC is a heavy burden for Apple to carry, especially as the Cupertino, Calif., vendor tries to stabilize its financial situation and dwindling PC market share.

FUTURE GROWTH

Analysts and Macintosh users agreed that for the PowerPC platform to really grow, it needs

PowerPC, page 45

Stratus Web servers tout reliability

By Jaikumar Vijayan

STRATUS COMPUTER, INC. is the latest in a growing list of vendors attempting to make the World Wide Web a safer place for electronic commerce.

The Marlboro, Mass.-based company last week announced a family of Web server products designed to reduce application downtime caused by hardware failure.

Stratus joins vendors such as Tandem Computers, Inc., Sun Microsystems, Inc. and Digital Equipment Corp. in offering

Stratus, page 45

Stratus clusters features

- Automatic fail-over of Microsoft's Internet Information Server
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- Clustering of Microsoft SQL Server applications

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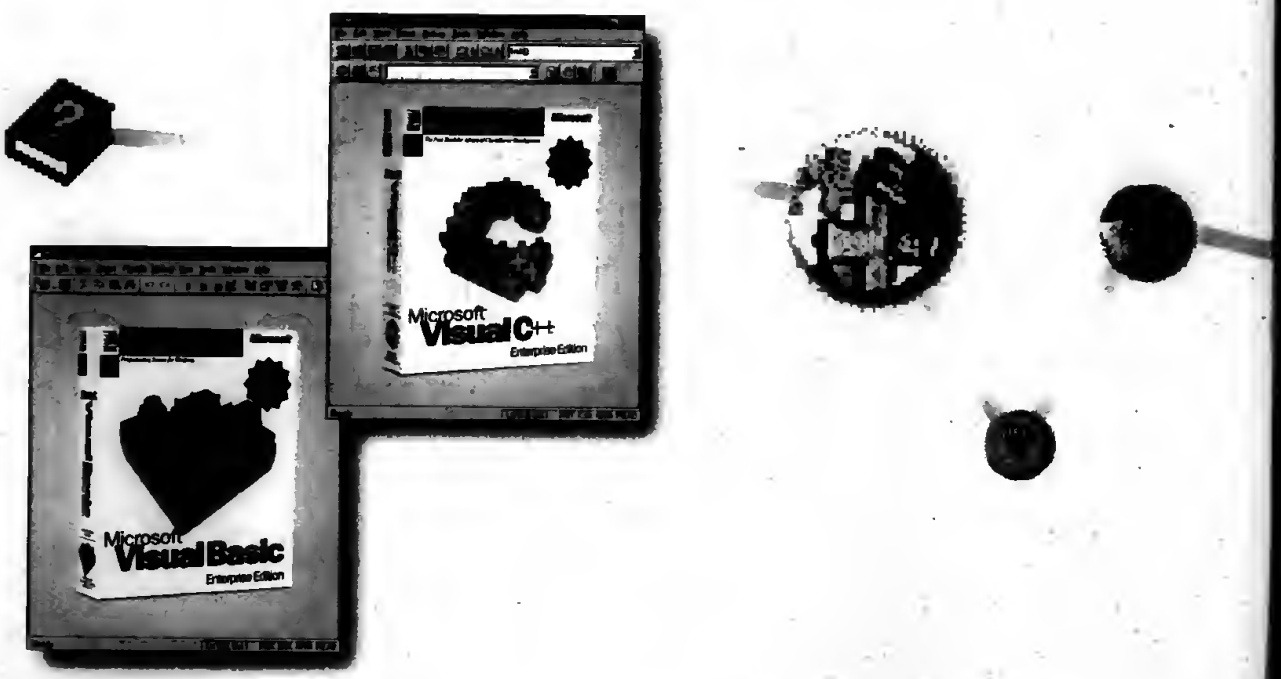

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NCR introduces low-end Pentium servers

▸ *Systems are costly but have additional capabilities built in*

By Jaikumar Vijayan

IN A DEPARTURE FROM its recent focus on the high-end server market, NCR Corp. last week introduced two entry-level models aimed at retail stores, bank branches and LAN server applications.

Prices for the S26 systems, which are available now, range from $11,750 for a single-processor model to about $16,150 for a two-processor system. This makes the servers more costly than most entry-level PC servers, but analysts said Dayton, Ohio-based NCR is charging for the increased scalability and management capabilities built in to the systems.

"The premium here is for the enterprise-type tools and management software that have been integrated with these systems," said Brian Murphy, an analyst at The Yankee Group in Boston. "These are low-end servers intended to be replicated in large numbers across large enterprises."

NCR'S S26 SERVERS

Processors: 133- and 166-MHz Pentium (can be upgraded to Pentium Pro)

RAM: 512M bytes (Error Checking and Correcting or Extended Data Out)

Expansion: Up to eight hot-pluggable drive bays

Price: $11,750 (one-processor system) to $16,150 (two-processor system)

NCR's S26 servers, for instance, come bundled with Windows NT or NCR Unix SVR4 operating systems. Customers can also select IBM's OS/2, SCO, Inc.'s UnixWare or Novell, Inc.'s NetWare operating systems.

FEATURE-PACKED

For Windows NT users, the S26 includes NCR's Server Manager 4.2, which monitors hardware resources such as memory and disk use. The Server Manager was designed to simplify workgroup and systems management for LAN administrators and includes a diagnosis and start-up capability for remote users linked to a company's network.

"The reason we are going with the S26 is the expandability and the ease of configuration it offers," said Ron Lyman, a senior network analyst at Barnes & Noble in New York. The company is replacing its Unix servers with Windows NT boxes and using NCR's S26 servers in the pilot stage.

Based on Intel Corp.'s 133- and 166-MHz Pentium chips, the S26 server features dual-processor support, 512M bytes of memory and up to eight hot-pluggable drive bays. An in-box upgrade feature lets users scale their systems to the higher-performing Pentium Pro processors by adding a new processor board.

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AS/400

CONTINUED FROM PAGE 39

MIS director at Orval Kent Food Co. in Wheeling, Ill.

Lynch described his firm as a midsize AS/400 shop that deals with many different technologies.

He said he would like to see IBM actually lead in the Java area before Orval commits to it.

In fact, IBM soon will create a separate network computer division headed by Bob Dies, who was most recently general manager of the AS/400 division. Observers said the move shows IBM is targeting the Java-based network computer as its midrange AS/400 users look for cheap, simple access devices.

Users agreed that native Java support could relieve their AS/400 access headaches by giving any Java client, such as a World Wide Web browser or network computer, access to AS/400 data. And with the AS/400's 64-bit addressing scheme and integrated management tools, more applets could be linked and served at the same time than with other Java servers, observers said.

PERSONNEL SAVINGS

AS/400 shops can also cut back on development costs by hiring Java programmers. "Once we have a strong Java implementation on AS/400, customers could use Java for the same tasks as they used expensive, niche RPG [AS/400 programming language] programmers before," said Simon Phipps, a program manager at IBM's Java technology development center.

But that will happen when AS/400 supports Java natively. The AS/400 currently can serve up Java applets via its AS/400 Internet Connection software, which isn't known for its blazing speed.

IBM officials said integrating Java support is easy because there are many parallels between the structure of OS/400, the AS/400's operating system, and Java. These include hardware independence and similar high-level interfaces that avoid getting involved in the intricacies of hardware-specific coding.

When the AS/400 gets native Java support, it will run as effectively as any Unix machine that runs Java, said Tom Bittman, an analyst at Gartner Group, Inc. in Stamford, Conn.

Some users on Internet Usenet groups have voiced concerns about this. They are afraid the AS/400 will become interchangeable with any Unix server and will lose its edge.

But other IBM customers pointed out that with Java, IBM could provide applications faster across all its computer lines rather than having to port them between MVS and OS/400, for example.

Connection tool eases AS/400 access

By Tim Ouellette

IBM AS/400 users last week received another option to access the midrange system from their Windows PCs.

Attachmate Corp. has announced Rally 6.2, PC-to-AS/400 connection software for Windows 95 and Windows NT platforms.

The move is important because even IBM admits that most users are trying to access AS/400 data from their desktops rather than from traditional dumb terminals.

Observers said Attachmate wants to capitalize on what some users call IBM's slow move to provide solid 32-bit support with its Client Access/400 line.

"Now that we are converting to Windows 95, our big stumbling block is Client Access," said Ray Capotosta, a project manager at Alside, Inc. in Cuyahoga Falls, Ohio.

The problem is complex setup and slow performance for the Windows 95 version of IBM's own Client Access/400 software, he said.

Attachmate officials say they are trying to target setup and speed with Rally 6.2. The Atlanta company has been solid in the PC-to-mainframe access market but would like to improve its midrange support.

"First of all, [Rally] is easy to install," said Jacob Lee, a consultant at Pacific Info Systems, Inc. in Beaverton, Ore. "And I am interested in its SNA-over-TCP/IP [networking] capabilities — those capabilities are the best we have seen."

Rally ships with 16-bit Windows 3.1 and 32-bit Windows 95 and Windows NT versions on the same CD-ROM.

IBM's version of Client Access/400 for Windows NT is in development.

HIGH-END MARKET

Analysts said vendors such as Attachmate have an opening on the high end because of the extra features they offer.

"IBM was always out to sell the AS/400 hardware rather than make a stand-alone business out of the client access piece," said Audrey Apfel, an analyst at Gartner Group, Inc. in Stamford, Conn.

Rally 6.2 will ship this month. It costs $209 per user.

Stratus servers

CONTINUED FROM PAGE 39

hardware and software products for secure electronic commerce.

"Reliability has always been an issue for big Web server sites," said Richard Fichera, an analyst at Giga Information Group in Boston. "Stratus has made a very smart move in packaging its clustering and high-availability technology around the Web," he said.

Stratus has packaged its Windows NT-based RADIO Cluster PC server products to provide selectable levels of availability for multiple Web-based applications. Pricing starts at $67,000.

ELECTRONIC COMMERCE

For instance, the new RADIO Cluster High Availability Server for IIS supports automatic fail-over of Microsoft Corp.'s Internet Information Server (IIS). The RADIO Cluster Continuous Availability Server for SQL enables clustering of Microsoft's SQL Server database applications.

By using one or a combination of both, corporations can customize for either high-availability or continuous-availability configurations.

In high-availability fail-over clustering, two or more servers are tied together, and each can assume the duties of the other in a server failure.

Stratus' continuous availability clustering product extends that concept to provide transparent recovery of all database applications in the event of a server failure.

"We have a number of applications running on these servers, which a bunch of our traders or brokers can dial in to," said David Hall-Tipping, president of Global Trading Technologies, a developer of custom software and applications for the financial industry, in Chantilly, Va.

Global Trading plans to offer Web-based access to its applications soon.

PowerPC trend

CONTINUED FROM PAGE 39

to expand beyond Macintosh-based machines.

"PowerPC is a fine thing for Apple and the Macintosh clones. Beyond that market, there is not a lot of opportunity even with NT on the PowerPC," Lewis said.

He said the lack of software available for Windows NT on the PowerPC is likely to hold back the platform for a couple of years.

Still, NT's availability for the PowerPC platform works in its long-term favor, proponents said.

Other advantages include the extremely fast speeds of the PowerPC RISC processors — a 500-MHz model is due in January — and the development of the CHRP.

The CHRP, which is being jointly developed by Apple and IBM, is a long-awaited common blueprint for all PowerPC systems to run multiple operating systems.

Motorola plans to deliver a CHRP progress report at this week's Comdex/Fall '96, said Will Swearingen, a product marketing manager at Motorola's RISC division.

Attendees can expect demonstrations of CHRP systems from several hardware makers, including Motorola, IBM, Apple, Umax Computer Corp. and Power Computing Corp.

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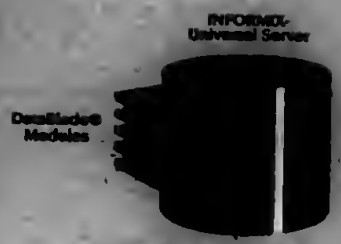
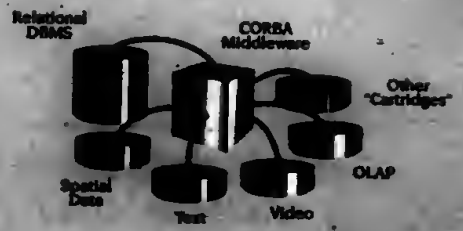


INFORMIX-Universal Server is a single, fully integrated, high-performance relational database engine for all datatypes.



Other "universal servers" are actually separate servers for each datatype, with extra layers of middleware to try to make them act like one environment.

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Windows 95, NT to support universal serial bus

By April Jacobs

MICROSOFT CORP. PLANS to support universal serial bus (USB) technology, a one-size-fits-all approach to PC peripherals, on new versions of Windows 95 and Windows NT.

Windows 95 and NT support for USB will be available in beta versions during the first quarter of 1997, according to Microsoft officials.

Users said that kind of support should make desktop systems easier to use and should improve the performance of some peripheral devices — but not until there is more support from hardware makers.

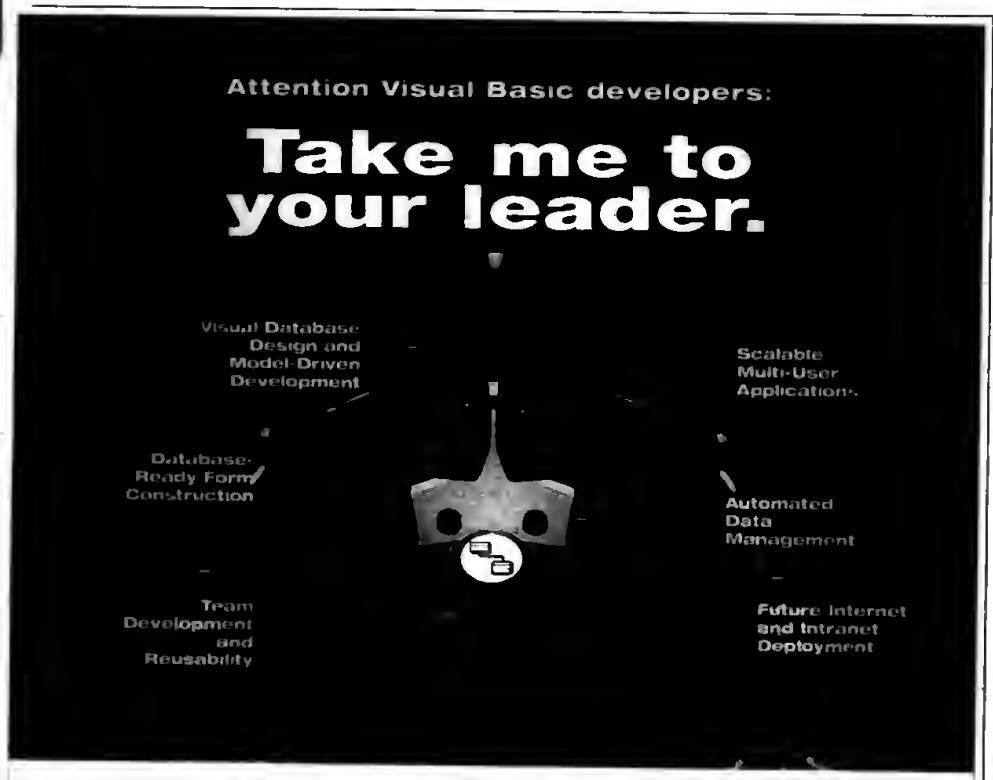
"These are going to make plug-and-play a lot easier," said Pompi Maluk, manager of information systems at Brewers Retail, Inc. in Mississauga, Ontario.

USBs — high-speed serial interfaces — allow multiple devices, such as mouses and keyboards, to be attached to a PC on one port. Today, those devices are attached via different ports on a PC.

The USB will also support devices in a hot-pluggable fashion: A user now left out in the cold because of a loose mouse or keyboard connection could plug in the device and have it recognized without rebooting, said Phil Holden, product marketing manager at Microsoft.

But users are also looking to see more support, particularly on the hardware side, for USBs because PCs will need the bus to interoperate with devices that support it, such as modems and printers.

"We think USB technology is going to be very important, but right now I don't see anything I can plug in" because peripheral devices must be compatible with the USB model, said Ray Peterson, IS specialist at Wisconsin Indianhead Technical College in Shell Lake.



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Protocol may simplify network file backup

By Matt Hamblen

SEVENTEEN STORAGE VENDORS recently signed on to a proposed network file backup standard that promises to simplify network file backup procedures.

The proposed protocol, Network Data Management Protocol (NDMP), would make every network-attached storage device "backup-ready" for plug-and-play operation. Users would not have to install networking software if the device was NDMP-compliant.

Some users said that would simplify and increase the performance of network file backup. Data management software vendors currently must connect their software to each combination of an application server platform and network-attached storage device.

WWW
www.ndmp.org. The full specifications for the proposed protocol are available at the NDMP's World Wide Web site.

"NDMP should produce a lot more flexibility for us in our area networks. Now, it's extremely cumbersome. There's very little interoperability," said Bill Yundt, vice president of networking at WebTV Networks, Inc. in Palo Alto, Calif.

Yundt said a jukebox of disks now has to be trucked around to connect where they are needed, but NDMP would allow remote handling of that function.

NDMP would ensure interoperability among file servers and backup devices, said officials at Network Appliance, Inc. in Mountain View, Calif. Network Appliance is developing NDMP with PDC Services, Inc. in King of Prussia, Pa.

Conspicuously absent from those supporting the protocol was Legato Systems, Inc., a major player in the Unix backup market. It said its backup technology exceeds the proposed standard.

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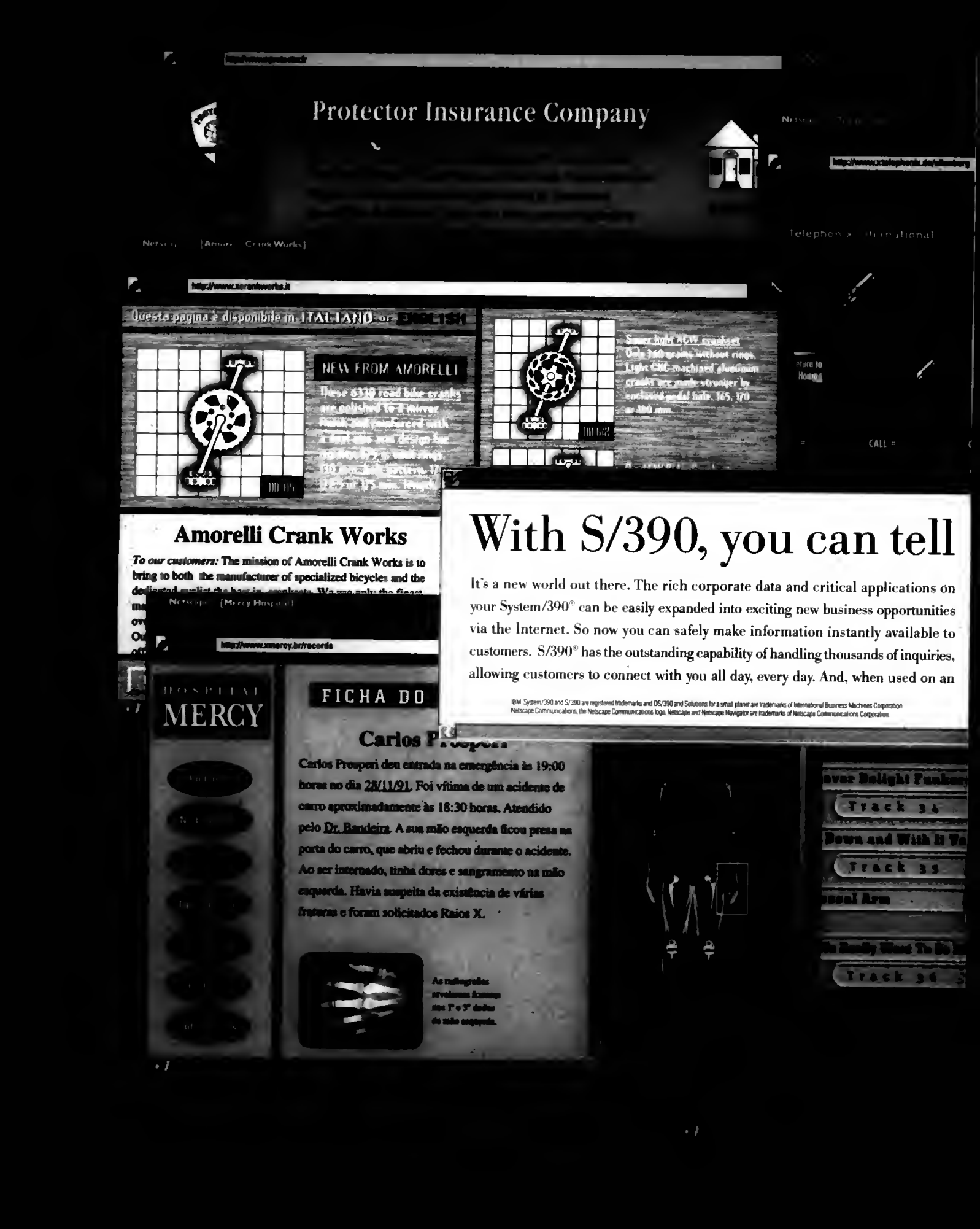
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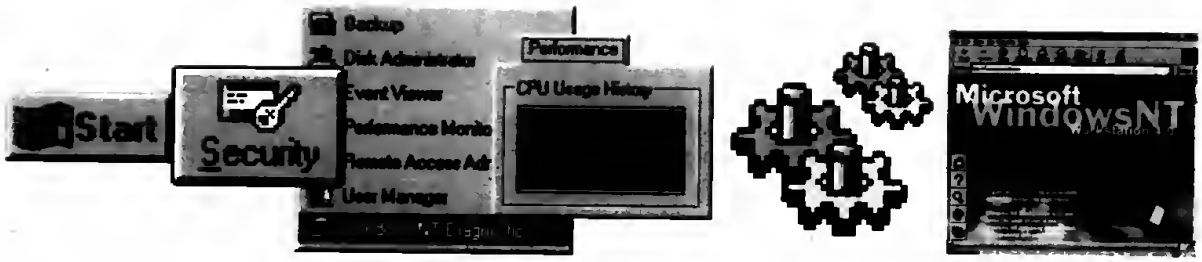
It has comp[illegible] drooling.



The Windows NT® Workstation operating system has always been powerful, and now it's easier to use. It's easier because all that power is now controlled by the familiar Windows® 95 interface. And besides having TCP/IP and the Microsoft Internet Explorer browser built-in for easy Internet access, Windows NT Workstation 4.0 has integrated Peer Web Services which lets small workgroups easily create their own intranets. Windows NT Workstation is also more reliable. It protects you from crashes because all applications run in their own memory space. Integrated security ensures applications and data are safe from user error or tampering. Windows NT Workstation 4.0 also helps administrators manage networks better by letting them troubleshoot remotely, viewing individual systems from their desktop. So does all this mean Windows 95 is history? Absolutely not. Windows 95 may still be the best choice for some users, depending on existing hardware and applications. We suggest you visit our Web site to compare and contrast operating systems to see which 32-bit desktop is best for you. Think of it as a test drive without the annoying sales-guy.

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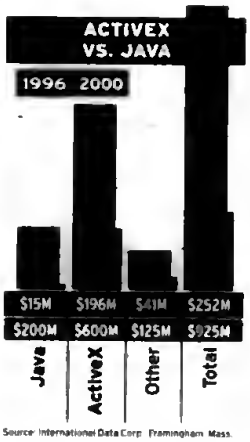


Source: International Data Corp., Framingham, Mass.

Client/server apps hit Web

▸ *Vendors offer Web gateway tools to link end users to intranets*

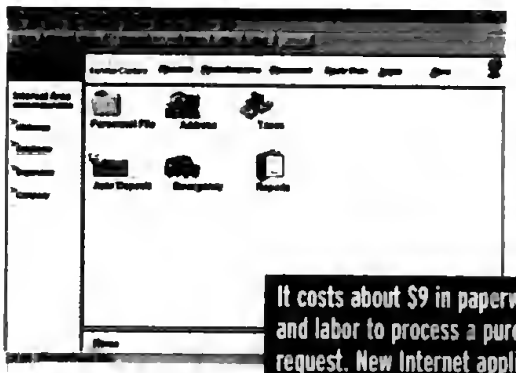
By Randy Weston

BUSINESSES COULD save money and boost the usefulness of their large business application packages with new Internet-based client/server software from major vendors.

Oracle Corp. released a set of Web-enabled applications in April, and Geac SmartStream in Atlanta, formerly Dun & Bradstreet Software, began to ship its products last month. Client/server software giant SAP AG in Germany, and smaller competitor Lawson Software, Inc. in Minneapolis will follow suit by the end of the year.

GATEKEEPERS

Called self-service centers, the applications sit on a corporate intranet and act as strictly defined World Wide Web gateways to corporate databases.



It costs about $9 in paperwork and labor to process a purchase request. New Internet applications could reduce that cost.

The gateways were designed to save companies labor and other costs by opening the often inaccessible applications to a wider audience. For example, they reduce the need for staff in human resources departments to answer questions about 401(k) plans, process address changes or perform other mundane tasks. Employees can make the changes from their desktop PC, a kiosk in the

Client/server, page 57

HP gives its Unix system a Java jolt

By Sharon Gaudin and April Jacobs

HEWLETT-PACKARD CO. is taking aim at Unix users who want to jump on the Java bandwagon.

HP is bringing Java capabilities to HP-UX, its Unix variant for high-end HP 9000 servers and workstations. HP is ramping up its Java offerings with the HP-UX Developer's Kit for Java and the HP-UX Virtual Machine for Java, which enable the server to deploy Internet- and intranet-based Java applications.

The Virtual Machine provides the execution engine for the deployment of Java applications.

HP, page 57

Corel's got graphics galore

▸ *Latest suite update is jam-packed with features*

By Lisa Picarille

COREL CORP. recently started to ship an updated version of its best-selling graphics application suite that is chock-full of enhancements.

The suite, CorelDraw 7, runs on Windows 95 and Windows NT and includes three applications: CorelDraw for drawing and illustration, CorelPhoto-Paint for painting and photo editing and CorelDream 3D, a three-dimensional modeling and rendering package.

The popularity of CorelDraw has helped bolster sales of Corel's business suite at the retail level.

Corel's graphics suite provides a streamlined and consistent method for using a variety of graphics applications.

One user said graphics play an important role in business.

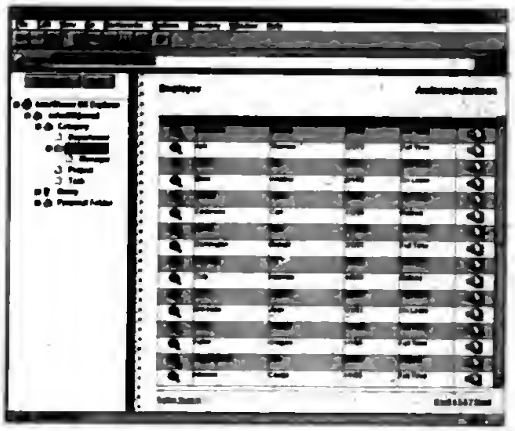
"CorelDraw lets me get my point across graphically, even though I'm not an artist," said Edward Krzanowski, an information systems manager at International Paper Co. in Woronoco, Mass. "Plus, the integration with the suite of business applications makes it easy to think of ways to illustrate important points without changing directions."

One analyst said Corel's ability to jam-pack features into its offerings is part of the appeal.

"Users perceive Corel products as having more value than competitors' offerings, because there are all sorts of extra features and functionality in the box," said Jeff Tarter, editor of "Softletter," an industry newsletter in Watertown, Mass.

The suite packs new features including a context-sensitive tool bar that changes depending on the application selected. The customizable interface lets

Corel, page 57



Interweave built its products to support Internet protocols

Web warehouses on the cheap

By Kim S. Nash

INTERWEAVE SOFTWARE INC. last week joined a posse of vendors trying to lasso users into data warehousing over the Web.

Start-up Interweave touts low cost and ground-up World Wide Web support as its key assets.

The overall promise of lower cost and simpler training routines has already lured some large companies, such as The Chase Manhattan Bank and Cracker Barrel Old Country Store, Inc., into experimenting with making data warehouses accessible across intranets.

The thinking is that cross-platform Web browsers are more economical than tradition-

Web warehouse, page 59

Briefs

Dun and who?

Time to update the Rolodex. Dun & Bradstreet Software, an application developer in Atlanta, last week officially became part of Geac Computer Corp. in Markham, Ontario. Geac immediately split D&B Software into two divisions and slapped its name on the new companies. The client/server business of D&B is now Geac SmartStream. The mainframe division is Geac MaidStream.

Apple's Mac for Unix

Apple Computer, Inc. this week plans to announce an upgrade to its Macintosh Application Environment (MAE), the company's emulation environment for X Windows. Version 3.0 of MAE, which will ship early next month, allows Unix users to run off-the-shelf Macintosh 68K-byte applications on their workstations.

MAE also adds Macintosh file handling and navigation to the Unix file system. Because of the integration between MAE and Unix, users can copy and paste text and graphics between Unix and Mac OS-compatible applications. They can also launch Unix applications from MAE. MAE runs on Sun Microsystems, Inc.'s SPARCstations that run SunSoft Solaris 2.4 or later operating system. It also runs on Hewlett-Packard Co.'s HP 9000 workstations that run HP-UX 9.0.5 or HP-UX 10.10 or later.

David.

intel inside
pentium processor

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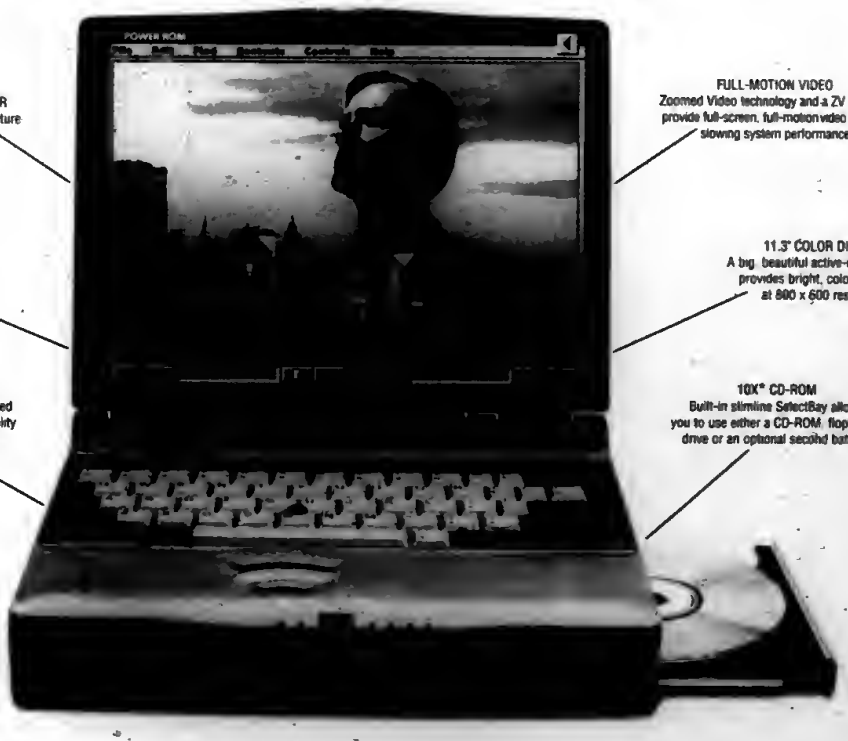
And Goliath.



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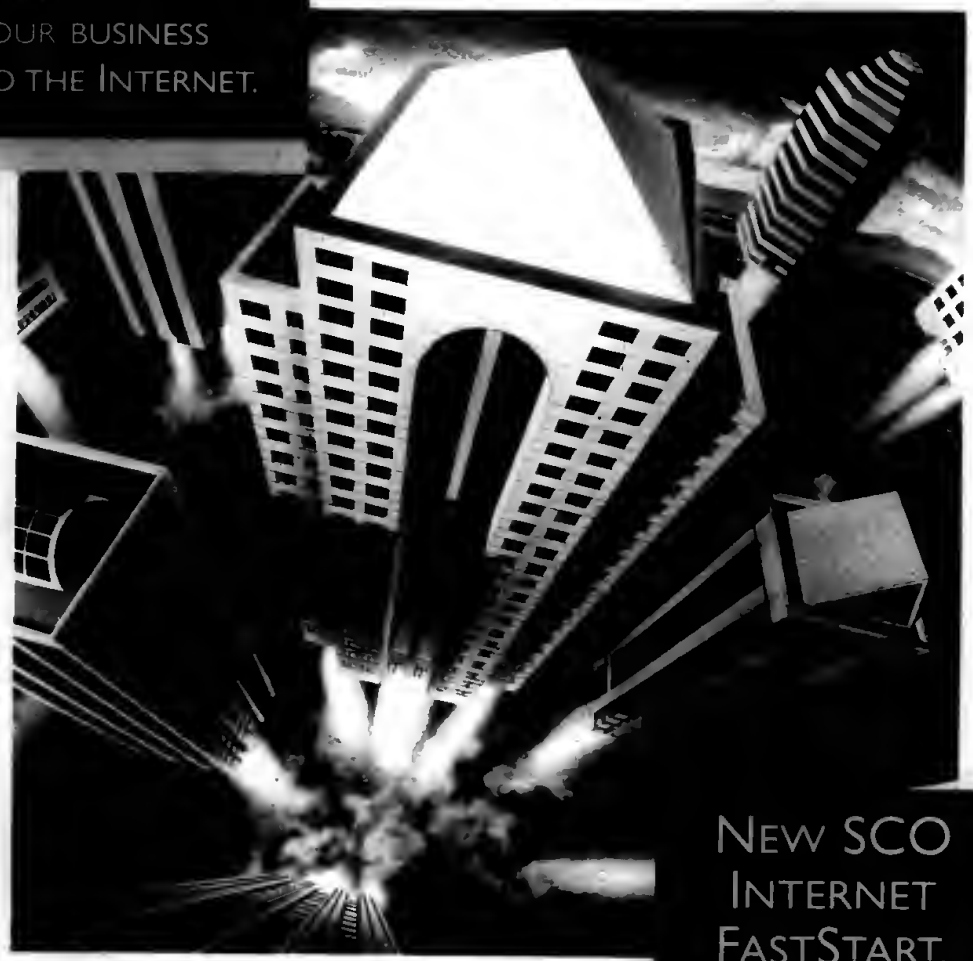

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Client/server apps hit Web

CONTINUED FROM PAGE 53

lunchroom or on the shop floor.

"You are definitely leveraging your investment with this technology," said Pat Rooney, senior manager of systems development at the National Wildlife Federation in Arlington, Va. "It's what we've been looking for in business process applications."

The Wildlife Federation, the nation's largest conservation organization, plans to install Lawson's human resource self-service applications when the package is released later this month.

But Rooney said that rather than waiting for the vendor to put Web front ends on its other applications, his staff used Lawson's WebPage Generator software to build its own Hypertext Markup Language interfaces to give remote offices limited access to financial and some human resources applications.

WEB TOOLS

"Our regional offices can now check over the Internet what the status of a purchase order is. Or at night, when we run financial reports in a region, you hit a hot button, and there they are," he said.

"This is what we've been trying to get out of client/server all along," said Adam Thier, a senior research analyst at Meta Group, Inc. in Stamford, Conn. "Self-service centers are going to completely and overwhelmingly change the client/server market. These functions have been in client/server systems, but they were lying dormant because they couldn't be effectively delivered to the users."

FOR THE MASSES

Most application packages were designed for a few specially trained users, which makes it difficult for casual users to benefit. Training large staffs to use the specialized software is financially prohibitive, and the applications themselves are "too fragile to be deployed on every user's desktop," Thier said.

And many businesses aren't taking advantage of some of the key functions of the large business application packages, such as SAP's R/3, in which they invested millions of dollars, he added.

"Filling out and processing purchase order requests [using client/server packages] costs something like $9 per request," Thier said. "Big companies are spending millions a year just on the process to buy something."

Such purchase processes may include combining purchase orders for bulk discounts or checking a department's budget to see if there is money to fund a purchase request.

By using the self-service centers, a casual user could request a stapler, for example, while still taking advantage of the functions built in to the larger applications.

HP gives Unix a Java jolt

CONTINUED FROM PAGE 53

and applets, which allows them to run on HP's Unix machines. The Developer's Kit will let programmers build Java applications for those machines. The products feed into a Unix market that is largely ignored when it comes to the mounting Java trend.

HP also is developing a just-in-Time (JIT) compiler for HP-UX. The JIT compiler enhances the speed and performance of Java by taking byte code and turning it into faster-running machine language just before it runs. The compiler eventually will be part of the Virtual Machine.

"We're a proponent of Java, and we think it's a logical extension to the object-oriented environment," said Tom Kitrick, a vice president at First Union Corp.

Kitrick said he expects to continue using Unix and other operating systems while he develops a network-centric computing environment that is heavily dependent on object technology. The Charlotte, N.C.-based bank uses Unix servers and Windows-based PCs.

Nathaniel Palmer, a senior analyst at Delphi Consulting Group in Boston, said a large percentage of companies still have Unix servers, despite the onslaught of Windows NT in the Unix market. And the Unix market isn't being served because most Java tools are being developed for Windows, he said.

UNIX WORLD

"It's not like what's coming out for Windows," Palmer said. "The application servers and Web servers are predominantly Unix. NT has not overtaken them."

Palmer also said HP's Java Virtual Machine and developer's tool kit may be just what information systems managers ordered for the enormous HP installed base. "A lot of people will be eager to stick with what they know," Palmer said. "They probably have an HP Unix system already or if they're investing in a new system, they have a solid track record with HP-UX."

Karen Boucher, an analyst at The Standish Group International, Inc. in Dennis, Mass., said HP is changing its hardware-only image with these Java tools.

"HP has a reputation for not being able to deliver great software," Boucher said. "Over the last year, they've come out with some pretty good [software] technology. It's something they need to get over ... and they are.

HP jumped on the Java bandwagon about six months ago with DepotJ, software that lets users create business objects with Java and gain access to multiple data stores.

The HP-UX Developer's Kit for Java and HP-UX Virtual Machine for Java are available now. They can be downloaded for free at www.hp.com/go/JAVA. The HP-UX Virtual Machine also will be shipped as part of future releases of HP-UX.

Corel

CONTINUED FROM PAGE 53

users edit icons and arrange tool bars and boxes.

The sophisticated graphics suite also provides tools to help novice and business users create graphics. New tools include more than 45n predesigned templates, a context-sensitive tutor option that takes users step-by-step through specific processes and the ability to drag and drop colors, outlines, fills, images, photos and styles. The suite costs $649 for the full version and $249 for an upgrade.

BIG DRAW

The popularity of CorelDraw, which is also included in Corel Office Professional, has helped bolster sales of the business suite at the retail level, according to industry watchers.

PC Data in Reston, Va., estimates that half of all retail sales of office productivity suites for the first half of this year were Corel's products.

That didn't go unnoticed by rival business suite developer and market leader Microsoft Corp. The Redmond, Wash., software giant announced it will add a sophisticated graphics program to its Office 97 product, due at the beginning of next year.

NEW PRODUCTS

JIM SPILLER & ASSOCIATES has announced Pert Chart Expert, a logic diagram generating program.

According to the Austin, Texas, company, Pert Chart Expert allows users of Microsoft Corp.'s Project to produce logic diagrams and network charts directly from their current projects. It was designed to avoid the need to export data from Project, exit the program and start up another application.

Pert Chart Expert costs $199.

Jim Spiller & Associates
(512) 342-2232
www.jsaproj.com

MAXXWARE, INC. has announced TimeStar 5 Personal Information Management software for computer professionals and business executives.

According to the Fallbrook, Calif., company, the product offers a ClipStore program so users can drag and drop contacts to future engagement dates.

Pricing starts at $98.

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(619) 731-7676
www.maxxware.com

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Info Builders fills gap in J. D. Edwards' app suite

▶ *Integrates reporting features*

By Tim Ouellette

THE REPORTS COMING in following Warner-Lambert Co.'s move from a mainframe to an AS/400 application server aren't good.

Users needed to create complex reports and make requests for information on the fly from applications in the newly installed J. D. Edwards & Co. business suite, said Efrem Litman, a development specialist at the consumer goods manufacturer in Toronto.

> "The support issues with different report writers would be a nightmare for us."
> – Efrem Litman
> Warner-Lambert

The applications included enterprisewide human resources and accounting applications that run on an IBM AS/400.

"We need ad hoc requests that actually integrated with the reporting methodologies with J. D. Edwards' [suite]," Litman explained.

BEYOND THE BASICS

The reporting module in J. D. Edwards' suite provides only basic features, a fact that the Denver software giant readily admits.

So Warner-Lambert got what it wanted with Information Builders, Inc.'s SnapPacks for J. D. Edwards, software that integrates the reporting features of Information Builders' popular Focus reporting software with the J. D. Edwards mid-range business suite. J. D. Edwards worked with Information Builders to develop the products.

The SnapPacks don't require users to know Focus programming.

They combine access to J. D. Edwards application data with access to unrelated data stored on the AS/400.

That access and ease of use let Warner-Lambert avoid installing multiple report-writing packages and gave s wide range of users access to AS/400 data.

"I didn't want to use different report writers for different things," Litman said. "The support issues with different report writers would be s nightmare for us."

For example, J. D. Edwards modules store numeric data without decimals. SnapPacks recognize this, but other report writers might not, meaning they would be unable to deliver the correct information.

The SnapPacks are available now.

They come in three options: Host Power Reporting for terminal users, Client/Server Reporting for users who access AS/400 data from PCs and Enterprise Reporting to combine J. D. Edwards data with unrelated AS/400 data.

Pricing starts at $905 per user.

REPORTER'S NOTEBOOK

Snapshots from OpenWorld

By Craig Stedman

SAN FRANCISCO

DATABASE ADMINISTRATORS by the thousands scurried through the subterranean halls of the Moscone Center here two weeks ago, joined by legions of salespeople from Oracle Corp. and other vendors trying to ride on Oracle's coattails.

They came for Oracle OpenWorld, the company's trade show, user-group meeting and developers conference. Here are snapshots of what transpired:

■ Larry Ellison's tub-thumping keynote about the Network Computer was once again couched mostly in home-user and consumer terms. But the Oracle chairman and other executives insisted they haven't forgotten corporate users.

"The corporate market doesn't get quite the same focus that the consumer one does at big events like this," said Jerry Baker, president of Oracle's network computer unit, after the keynote. "But behind the scenes, a lot of work is going on to address the corporate market."

■ Choosing Netscape Communications Corp.'s Nsvigator as the browser to bundle with the Pentium-based Network Computer was an easy call, Ellison said. "There are only two browsers out there, and one of them belongs to Microsoft," he said. "We picked the one that didn't belong to Microsoft."

■ You work and work to set up s big demonstration, and then it sll gets undone by a rogue cameraman. That happened in front of an audience of s couple of thousand people as Oracle tried to show off some new query tools. A laptop computer running a piece of the demo went into blank-screen mode to save power . . . and the video cameraman who was on stage decided to give it a little jiggle. That was enough to loosen the laptop's network connection and make the demo go pfft.

■ The essence of trade shows was captured in s five-second sound bite that was part of s nonstop wall-size video feed inside the Moscone Center's main entrance. An OpenWorld exhibitor had this to say about the users stopping by his booth: "People ask a lot of technical questions, although they invariably ask about the free stuff we're giving away, too."

NOT JUST SOFTWARE ANYMORE

Besides the attendance fee of up to $1,195 that Oracle charged for OpenWorld, the company tried to cash in on peripherals that bore the logo. Also, sales were said to be slow.

Polar fleece jacket	$90
Wristwatch	$75
Mini alarm clock	$55
Golf umbrella	$45
Fleece infantwear	$25
Boxer shorts	$18
Child s T-shirt with propeller beanie design	$15
Lapel pin	$4

Web warehouse

CONTINUED FROM PAGE 53

al desktop reporting and query packages, such as those from Business Objects, Inc.

Interweave, in Santa Clara, Calif., is trying to capitalize on that with DS Modeler and DS Server, which were shipped last week. The products were built to support Internet protocols, such as Hypertext Transport Protocol and Hypertext Markup Language (HTML).

Interweave beta tester Eugene Poznikov said he likes not having to use special client software. A browser will be less expensive, especially for applications with many hundreds of users, said Poznikov, electronic data interchange coordinator at MSAS Cargo International, Inc., a freight forwarding firm in Burlingame, Calif.

"The $25,000 or so they are asking for their server software might sound high, but think about how much it would cost to roll out s $500 desktop product to 4,000 or 5,000 users," Poznikov said, referring to the average price he recently saw for a client/server analysis product.

Here's how the Interweave products work: A database administrator or webmaster tells the DS Modeler development tool the names of relevant tables in a relational database. DS Modeler reads the schema, or the way the tables are set up, and stores that information as objects.

The DS Server runtime module then creates HTML links to those objects, based on the results of end-user queries.

Users with Netscape Communications Corp. Navigator, Microsoft Corp. Internet Explorer or browsers that support frames can view the links or drill down to more detailed data in the back-end database.

BETTER WITH AGE

Web warehousing isn't brand-new, but the products are getting better, said Michael Dressler, s partner st WorkFlow Partners, Inc., s client/server consulting firm in San Francisco.

For example, inherently understanding HTML "is s big plus," he said. Interweave's use of object-oriented technology will let IS managers customize the kind of analysis that warehouse users can perform, he added.

DS Server costs $10,000 to $35,000, depending on the number of users. The DS Modeler development kit costs $750. The products run on Windows NT and Windows 95; Unix versions are due in the first quarter next year.

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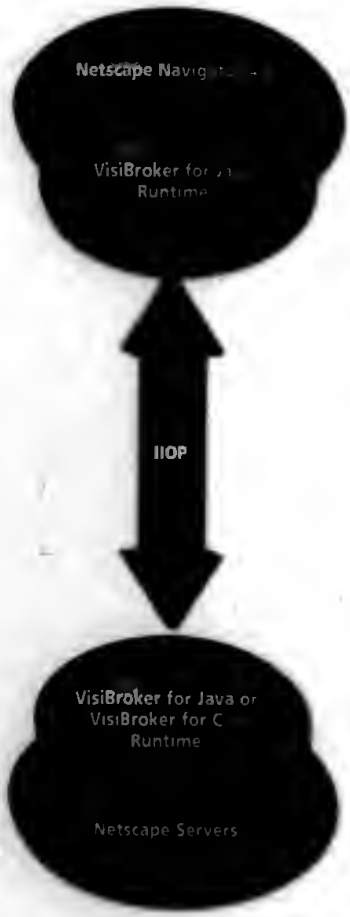

"Netscape To Integrate Visigenic ORB Products Into Netscape ONE Platform"

— Netscape Communications
July 30,1996

We've all read the headlines about Netscape and their commitment to providing the most advanced technology for the Web. The story behind the headlines: Netscape is using Visigenic's object request broker technology to enable Netscape ONE to support the Internet Inter-ORB Protocol (IIOP) — the standards-based way your Java applets and distributed application objects will link together to create powerful business applications for the Internet and Intranet. ▼ So why turn to Visigenic? Because nobody knows more about IIOP and ORB technology for the Web. After all, Visigenic, a pioneer in distributed object technology, developed the first Java ORB, and was the first to commit to IIOP. There's more. With VisiBroker for C++ complementing VisiBroker for Java, you can link application objects from both your enterprise and Web servers. ▼ The real news here: develop with VisiBroker today and be ready to take advantage of the VisiBroker runtime that will be part of the upcoming version of the world's most popular Web browser. To contact Visigenic call **1-800-800-0361, 1-415-312-7197**, or e-mail **Info@visigenic.com**

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COMMENTARY

Listen up, Microsoft

FRANK HAYES

MEMO TO MICROSOFT: Stop thinking and start listening.

"We may not be very good at listening to customers," a Microsoft product manager told me recently, "but eventually we get it."

He was explaining why Microsoft is talking about an upcoming version of Internet Explorer that will let Windows 3.1 users run Java applets. Is that a good thing? Sure. But it would have been a lot better to hear it six or eight months ago.

Corporate users want Java on Windows 3.1. When it comes to business desktops, 16-bit Windows is the No. 1 legacy platform. And corporate Java developers have been asking for Java support on Windows 3.1 — loudly and unambiguously — since last spring.

Netscape and IBM heard those users. IBM has already delivered application-level Java support for 16-bit Windows, and Netscape says its much-delayed Java-enabled version of Navigator for Windows 3.1 will arrive any day now.

But back in April — when Netscape and IBM were talking up Java on 16-bit Windows — Microsoft insisted that its Java plans didn't need to include Windows 3.1.

No doubt a lot of thought went into those plans. Maybe too much thought, in fact. All that thinking seems to have left Microsoft unable to hear what its corporate customers need.

Microsoft has suffered from this kind of deafness before. While Visual Basic 4.0 was in development last year, we were told it would no longer work on Windows 3.1. Microsoft eventually relented and added 16-bit support to the development product before it shipped (although some corporate developers say Visual Basic 4.0 still requires too much memory and disk space compared with the previous version).

And when Microsoft rolled out Visual J++, its Visual C++-like Java development environment, yet another product manager insisted that users didn't really want Java development tools modeled on the easier-to-use Visual Basic. "That's not the Holy Grail," he said.

Baloney. Users have been saying for months that's what they want. Symantec, Borland, IBM and other vendors are working on Visual Basic-like development environments for Java. Microsoft eventually will get the word, too. However, corporate IS departments would have a much easier time if Microsoft wasn't the last kid on the block to hear the news.

Corporate customers need Microsoft to pay attention — right now. The requirements of client/server applications have picked up the pace of corporate development dramatically. The Internet and intranets are pushing developers even harder. They can't wait for Microsoft to start doing the right thing eventually.

So here's a modest proposal: Microsoft's product managers should spend some quality time with corporate users. Not just to present Microsoft's plans — there's plenty of that already — but also to ask hard questions about what those users really need and then listen — really listen — to what they say.

A lot of what those product managers hear may not match their carefully crafted product plans. So much the better — that's the input that will make real improvements in Microsoft's products.

Stop thinking and start listening to what your corporate users are saying, Microsoft. Or those corporate customers will find what they need somewhere else.

Hayes is Computerworld's staff columnist.

Users get sneak preview of Oracle8

▶ *Database and Sedona object development tool won't be available until mid-1997*

By Craig Stedman

SAN FRANCISCO

ORACLE CORP. GAVE users a look at its long-promised Oracle8 database and Sedona object development tool at Oracle OpenWorld this month, and several attendees said they liked what they saw.

Oracle vows that Oracle8 will scale up to support mainframe-like levels of data and numbers of users, while adding the ability to handle objects and complex data such as video and audio. Sedona will be a drag-and-drop development environment that customers can use to snap together Oracle8 applications.

> Oracle8 and Sedona make "object technology seem pretty simple"

But there are some catches. For starters, it will be a while before Oracle customers can actually touch either Oracle8 or Sedona because the object-enabled duo isn't scheduled for general availability until the middle of next year.

In addition, Oracle executives said here that the first release of Oracle8 may not support the external data cartridge plug-in technology that the company is devising to extend the database's functionality. The cartridge capability is supposed to be one of the key pieces of Oracle8.

Those caveats notwithstanding, a sneak preview of Oracle8 and Sedona working together caught the eyes of OpenWorld attendees such as Rick Timm, assistant vice president of systems architecture at Provident Mutual Life Insurance Co. in Berwyn, Pa.

"This is some of the most reasonable stuff I've ever heard out of Oracle," Timm said. Because of the complexity of controlling dispersed client/server environments, "distributed objects are really the best game in town, and it sounds like Oracle is coming to grips with that."

Timm said he also was intrigued by new database partitioning and backup features being built in to Oracle8. "With the few [client/server] applications that we have deployed, we're already sick of the management issues," he said. "We're up to our arms in backups."

The demonstration of Oracle8 and Sedona "made object technology seem pretty simple, whereas before it looked like a big nightmare," said Louis Gawron, a systems engineer at Chemical Abstracts Service in Columbus, Ohio, which keeps a database on chemical regulations.

Sedona's ability to provide users with object views of relational data stored in Oracle8 could make it easier to marry the two technologies, Gawron said.

NO THIRD-PARTY MODULES

The first release of Oracle8 will include some embedded support for nonrelational data such as video, text and images. However, external cartridges written by users or other software vendors may not be enabled until later, said Peter Relan, a vice president at Oracle's server technologies unit. "We haven't really figured out when to add that yet," he said.

By comparison, Informix Software, Inc. will support third-party modules, or DataBlades, when its object-enabled Universal Server database ships in December. That may explain a recent Oracle marketing campaign to depict DataBlades as less secure than the cartridge approach, industry watchers said.

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Briefs

Modem boost

Remote access kingpin Ascend Communications Corp. has started to ship code from Rockwell Semiconductor Systems that will enable the firm's high-end communications servers to support 56K bit/sec. modem links from remote users to Ascend's high- and MAX and super high-end TNT servers.

Automated mgmt

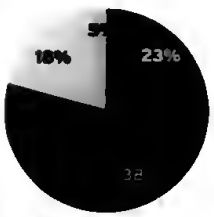
Compaq Corp. in Cambridge, Mass., this spring plans to roll its Foal Report. The product is an automated helper that works with network management platforms to detect and filter events reported by routers, including applying updates and applications instead of just transmitting them.

Modem server ships

U.S. Robotics Corp. in Skokie, Ill., recently introduced the Managed MP/i, an eight-port modem pool product designed for remote offices and Internet service providers. The MP/i features Flash ROM software to let businesses download new features. The MP/i is due for $9,599 and begins shipping this month.

ARE YOU WIRED?

How interested are you in a wireless device that allows you to send/receive data via a cellular phone?



Base: 100 Fortune 1,000 companies

- Very interested
- Somewhat interested
- Not at all interested
- Other

Source: The Yankee Group, Boston

Global networks

▸ *What to look for when choosing a worldwide carrier*

By Kim Girard

MCI COMMUNICATIONS CORP. and British Telecommunications PLC recently made it clear that both companies intend to be your one-stop answer to global networking.

Under a $21.8 billion merger that unites both companies under the name Concert, MCI and BT will connect their Internet backbones in Europe, the U.S. and Asia during the first quarter next year. AT&T Corp. and Sprint Corp. have also established global partnerships, jockeying to offer more comprehensive global packages first.

But what is the right way to buy global carrier services to get the best data services on the wide area, from a frame-relay network to Internet access? It depends on whom you ask. With a deregulated telecommunications environment and intranets coming to the fore, it is a lot more complicated than it was just a year ago, analysts said.

HOW TO PLAN A GLOBAL NETWORK

- Develop a project plan, analyze what you have and what you will need
- Interview business planners and application developers
- Investigate the standards and technology in the country you're considering
- Draft an installment time line

Source: Ernst & Young LLP, Chicago

"A single supplier should be used as much as possible," said Jan Hertzberg, an analyst at Ernst & Young in Chicago. He said he recommends, when possible, consolidating vendors, preferably by working with one of the big three carriers — Sprint, AT&T or MCI — for bundled services. The advantage is the reach these companies have abroad through partnerships and, in some cases, investment in infrastructure, he said. Businesses should also seek a partner in a carrier, he said.

But Ronald Ward, chairman of MARtech Strategies, Inc., a global network consultancy in Indialantic, Fla., said the one-carrier principle works only in an ideal world. Many companies are using diverse legacy platforms and services and will require different services that one carrier won't necessarily best

Global networks, page 69

Internet mail service links E-mail nets

By Tim Ouellette

AT DECEMBER, users can begin to stitch together private, intercompany electronic-mail networks without exposing them to the vagaries of the Internet, using a new service from Fabrik Communications, Inc.

Internet mail, page 68

Platforms and pricing for VPN

- →Lotus CC:Mail
- →Lotus Notes
- →Microsoft Exchange
- →Microsoft Mail
- →Novell GroupWise

[redacted]

Novell provides NT connection

By Laura DiDio

NOVELL, INC. recently released client software that lets businesses connect their Windows NT Workstation users to file servers that run Novell's NetWare and IntranetWare.

The new IntranetWare Client for Windows NT is available free and can be downloaded from www.novell.com. It gives Windows NT Workstation 3.51 and 4.0 users full 32-bit access to all Novell services, including the Novell Directory Services (NDS) database directory.

The IntranetWare Windows NT client automates part of the installation and upgrade process.

It is bundled with the updated version of Novell's Application Launcher, which gives users access to their applications through NDS regardless of their location, said Cary Pittard, product manager for the IntranetWare Client for Windows NT.

IntranetWare, introduced at Networld/Interop in September, is Novell's all-in-one network operating systems and Internet/intranet access package. It combines the network operating system, World Wide Web server, a multiprotocol router and remote access product, Web browser licenses and authoring tools.

Early deployers of IntranetWare Client for Windows NT were especially enthused about the ability to log in only once to both NT and NetWare. The Single Login facility, they said, isn't found in the rival Microsoft Corp. Client Services for NetWare product.

Jim Drews, network administrator at the University of Wisconsin in Madison, said the feature has been a time-saver for him and his fellow administrators.

"With the Single Login facility, my Windows NT Workstation users only have to know the Net-

Novell, page 68

Netsys automates router fixes

▸ *Tool cuts through configuration complexity*

By Patrick Dryden

THE SEEMINGLY endless combination of router connections and configurations in the internetworks of large organizations can overwhelm human operators who monitor a management console.

Netsys Technologies, Inc. this week will ship a tool designed to cut through that complexity. The utility uses information collected by Netsys' intelligent modeling tools — which were designed to plan, test and optimize networks — to automatically isolate problems and suggest solutions.

Netsys users can apply configuration data, collected for testing changes off-line, to quickly troubleshoot live network problems.

The module, Netsys Advisor, is written in Java, so operators can find and fix network problems from any browser. It works with new and enhanced soft-

Netsys automates, page 69

NETSYS AIMS AT AUTOMATION

Product	Function
Netsys Advisor	Automates router configuration and troubleshooting and recommends solutions
Netsys Connectivity Tools	Tests changes and distributes new router configuration files
Netsys Performance Tools Version 2.0	Discovers bottlenecks, tunes connections and helps plan changes
Multivendor Module	Extends Netsys tools to handle routers other than Cisco's

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Automated expert

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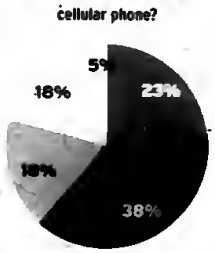

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By Kim Girard

MCI COMMUNICATIONS CORP. and British Telecommunications PLC recently made it clear that both companies intend to be your one-stop answer to global networking.

Under a $21.8 billion merger that unites both companies under the name Concert, MCI and BT will connect their Internet backbones in Europe, the U.S. and Asia during the first quarter next year. AT&T Corp. and Sprint Corp. have also established global-partnerships, jockeying to offer more comprehensive global packages first.

But what is the right way to buy global carrier services to get the best data services on the wide area, from a frame-relay network to Internet access? It depends on whom you ask. With a deregulated telecommunications environment and intranets coming to the fore, it is a lot more complicated than it was just a year ago, analysts said.

HOW TO PLAN A GLOBAL NETWORK

- Develop a project plan, analyze what you have and what you will need
- Interview business planners and application developers
- Investigate the standards and technology in the country you're considering
- Draft an installment time line

Source: Ernst & Young LLP, Chicago

"A single supplier should be used as much as possible," said Jan Hertzberg, an analyst at Ernst & Young in Chicago. He said he recommends, when possible, consolidating vendors, preferably by working with one of the big three carriers — Sprint, AT&T or MCI — for bundled services. The advantage is the reach these companies have abroad through partnerships and, in some cases, investment in infrastructure, he said. Businesses should also seek a partner in a carrier, he said.

But Ronald Ward, chairman of MARtech Strategies, Inc., a global network consultancy in Indialantic, Fla., said the one-carrier principle works only in an ideal world. Many companies are using diverse legacy platforms and services and will require different services that one carrier won't necessarily best

Global networks, page 69

Internet mail service links E-mail nets

By Tim Ouellette

BY DECEMBER, users can begin to stitch together private, intercompany electronic-mail networks without exposing them to the vagaries of the Internet, using a new service from Fabrik Communications, Inc.

Internet mail, page 68

Platforms and pricing for VPN

- Lotus CC:Mail
- Lotus Notes
- Microsoft Exchange
- Microsoft Mail
- Novell GroupWise

$50 per month per organization connected to the private network

30 cents per outbound message

$0 cents per registered outbound message

Novell provides NT connection

By Laura DiDio

NOVELL, INC. recently released client software that lets businesses connect their Windows NT Workstation users to file servers that run Novell's NetWare and IntranetWare.

The new IntranetWare Client for Windows NT is available free and can be downloaded from www.novell.com. It gives Windows NT Workstation 3.51 and 4.0 users full 32-bit access to all Novell services, including the Novell Directory Services (NDS) database directory.

The IntranetWare Windows NT client automates part of the installation and upgrade process.

It is bundled with the updated version of Novell's Application Launcher, which gives users access to their applications through NDS regardless of their location, said Cary Pittard, product manager for the IntranetWare Client for Windows NT.

IntranetWare, introduced at Networld/Interop in September, is Novell's all-in-one network operating systems and Internet/intranet access package. It combines the network operating system, World Wide Web server, a multiprotocol router and remote access product. Web browser licenses and authoring tools.

Early deployers of IntranetWare Client for Windows NT were especially enthused about the ability to log in only once to both NT and NetWare. The Single Login facility, they said, isn't found in the rival Microsoft Corp. Client Services for NetWare product.

Jim Drews, network administrator at the University of Wisconsin in Madison, said the feature has been a time-saver for him and his fellow administrators.

"With the Single Login facility, my Windows NT Workstation users only have to know the Net-

Novell, page 68

Netsys automates router fixes

▸ *Tool cuts through configuration complexity*

By Patrick Dryden

THE SEEMINGLY endless combination of router connections and configurations in the internetworks of large organizations can overwhelm human operators who monitor a management console.

Netsys Technologies, Inc. this week will ship a tool designed to cut through that complexity. The utility uses information collected by Netsys' intelligent modeling tools — which were designed to plan, test and optimize networks — to automatically isolate problems and suggest solutions.

Netsys users can apply configuration data, collected for testing changes off-line, to quickly troubleshoot live network problems.

The module, Netsys Advisor, is written in Java, so operators can find and fix network problems from any browser. It works with new and enhanced soft-

Netsys automates, page 69

NETSYS AIMS AT AUTOMATION

Product	Function
Netsys Advisor	Automates router configuration and troubleshooting and recommends solutions
Netsys Connectivity Tools	Tests changes and distributes new router configuration files
Netsys Performance Tools Version 2.0	Discovers bottlenecks, tunes connections and helps plan changes
Multivendor Module	Extends Netsys tools to handle routers other than Cisco's

Internet sparks mobile, wireless popularity

▶ *However, price remains a stumbling block for adoption*

By Mindy Blodgett

NEW YORK

THE RISE OF the Internet and the growth of corporate intranets is fueling increasing interest in mobile and wireless data communications, according to users and industry observers at The Yankee Group's recent Mobile Communications conference here.

"The Internet is sparking renewed interest in mobile data and mobile devices," said Mark Lowenstein, an analyst at The Yankee Group in Boston. "This is a key driver ... and we think it will lead to more integration of wireless and wireline service."

Road warriors increasingly want access to electronic mail, the Internet and intranets from anywhere, Lowenstein said. And many see wireless data communications as a fast way to get that access.

But price remains a problem, according to a Yankee Group survey of users at 100 Fortune 1,000 firms. Those surveyed ranked the comparatively high cost of wireless transmissions as well as the lack of widespread availability of data networks as the key inhibitors in implementing wireless communications.

"We don't have pricing yet that encourages users," said Roberta Wiggins, an analyst at The Yankee Group. "And users are looking for integrated voice and data services."

Laura Graham, a telecommunications manager at International Specialty Products, Inc. in Wayne, N.J., said that although wireless data communications holds promise, especially for the company's mobile sales force, she is hesitant about rolling it out.

"I am concerned about pricing and availability. And I already have enough trouble with security and other issues with cellular voice. I can't imagine throwing data on top of that," Graham said.

A Yankee Group survey of 100 Fortune 1,000 companies revealed that, on average, 29% of their workforces use cellular technology. That number is expected to grow to 53% in three years.

Wiggins said that of the estimated 1.9 million wireless data communications users, about 49% are in transportation and fleet management, and 27% are in field service.

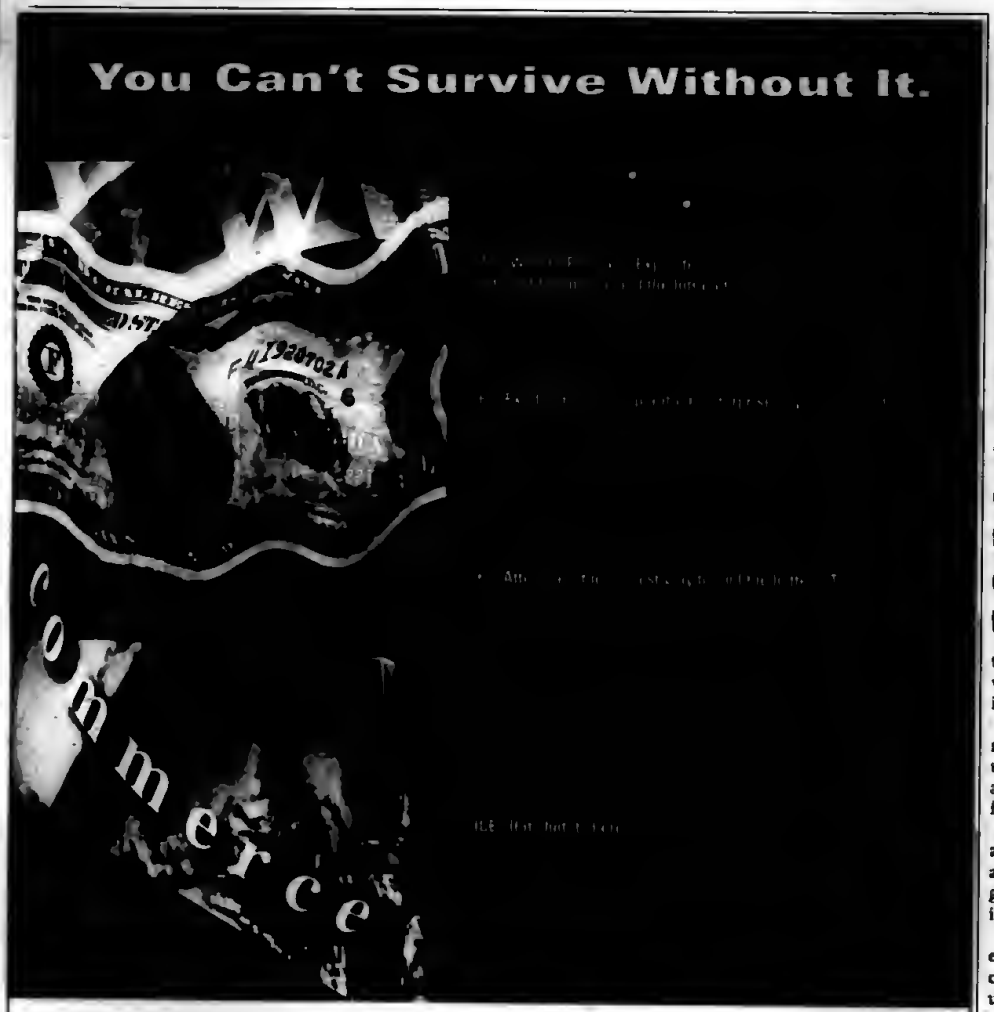
The remaining users are scattered among the health care and retail markets as well as mobile office workers, but Wiggins predicted that the financial services industry will increasingly go wireless.

Wiggins and Lowenstein also predicted that integrated voice and data devices, called "smart phones," will grow in popularity as will the use of personal digital assistants (PDA).

The recent announcement of Microsoft Corp.'s Windows CE operating system for PDAs — which will be supported by several devices due to be announced at this week's Comdex/Fall '96 show, including the Mobile Pro HPC from NEC Technologies, Inc. — will help the palmtop computing market, which will fuel the market for wireless communications, industry observers said.

But users aren't certain how wide PDA deployments will be in corporate settings.

For example, Mike Radigan, program manager at Xerox Corp. in Rochester, N.Y., said, "I don't see us buying 5,000 [PDAs] for use across the enterprise — not yet anyway."



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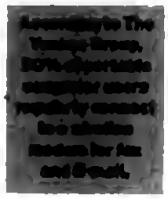
Internet mail networks linked

CONTINUED FROM PAGE 63

Fabrik's Virtual Private Network (VPN), announced last week, will let companies create E-mail connections with partners, clients and suppliers across a private network. That avoids the security and reliability pitfalls of Internet E-mail.

And the service doesn't require most users to change their internal E-mail systems. It supports the five leading LAN-based E-mail products, a collection that covers nearly 80% of all LAN E-mail users (see chart page 63).



For example, TriNet Employer Group provides human resource and administration services to 120 companies. The San Leandro, Calif., firm wanted to provide secure E-mail without trying to control what product each and every client used, said Martin Babinec, president of TriNet.

"With payroll, benefit and employee relations, our communications have a high degree of sensitivity and confidentiality," Babinec said. "Fabrik VPN lets us have a higher-level security than standard Internet routing."

Users install Fabrik software on an E-mail server that connects directly to Fabrik's network. The only difference users see between sending E-mail within their own organizations and sending it via the VPN is that the service requires that subscribers use the Internet E-mail addressing format (jsmith@widget.com) instead of their LAN E-mail addresses to reach another company. Fabrik's messaging center then handles the transmission to the proper recipient company.

Analysts said such a service is a benefit for midsize to smaller companies that can't afford to install and manage a complex system of E-mail gateways or create and maintain private networks

JUST NOT COMFORTABLE

"Some companies just are not comfortable doing business or trading information over the Internet because they are not sure where the data is going and who has access to it," said Amie Shapiro White, an analyst at International Data Corp. in Framingham, Mass.

Fabrik's competition will be the larger, more expensive value-added networks such as IBM's Global Network, White said.

Still, you get what you pay for. VPN provides only E-mail and won't immediately offer a directory service that will automatically update changes in the E-mail addresses of companies connected across VPN, though such a service is in the works. Instead, companies must manage and update their internal directories and share that information with trading partners.

"Even with this service, there is no way around it, there is maintenance [of E-mail systems]," said an MIS director at a Northeast firm that is testing the service with three clients. "But it is worth it because I know what a headache handling gateway software can be," she said.

Novell provides connection to NT

CONTINUED FROM PAGE 63

Ware password," Drews said. If the university had used Microsoft's Client Services software for NetWare, he said he would have had to create and duplicate all the user accounts from NetWare to NT Workstation "since Microsoft requires an NT log-in first.

So the Novell 32-bit client for Windows NT Workstation saves me time and my users the hassle of the extra log-in," he said.

Tim Miller, a telecommunications engineer at AlliedSignal Corp. in Tempe, Ariz., agreed. He called the ability to log in to the full NDS tree and the Windows NT domains "a big plus."

"It's much easier to change user passwords," Miller said. "And unlike the Microsoft client, the Novell IntranetWare software lets me synchronize passwords and eliminates the troublesome process of being accidentally disconnected from the network."

GOOD REMOTE ACCESS

Miller also praised the IntranetWare Windows NT client's remote access capabilities. He said his users can log in from home to the Novell network using the TCP/IP protocol through a Point-to-Point Protocol/Internet service provider.

Drews also was pleased with the 32-bit NWAdmin, which he said was significantly faster than the 16-bit version.

"It doesn't sound like a big deal until you realize how much time you save when you're managing 5,000 user objects," he said.

Novell and Microsoft team up to support users

Besides the enhanced connectivity capabilities offered by the latest releases of the Novell IntranetWare Windows NT client software and Microsoft's Client Services for NetWare, there are some other equally important benefits.

The latest releases mark the first time the two competitors are cooperating on support issues. Past versions of client connectivity software to link the NetWare and Windows NT environments have been marred by bugs and lots of vendor finger-pointing.

"I'm just glad to hear they're cooperating," said Jim Drews, network administrator at the University of Wisconsin in Madison. "It gives me some hope that problems will be resolved quicker."

The demands of users for better service led the two software giants to forge a first-time support agreement this past spring, according to Cary Pittard, product manager for Novell's IntranetWare for Windows NT client. The pact stipulates that whenever either Novell or Microsoft receives a technical call from a mutual customer, they contact the other company. Then engineers from Microsoft and Novell work together to resolve it. — Laura DiDio

www.microsoft.com/office/97/fewer1s

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Netsys automates router fixes

CONTINUED FROM PAGE 63

ware in the Enterprise/Solver line from the Palo Alto, Calif., vendor, which is being acquired by Cisco Systems, Inc.

The acquisition will allow Cisco to offer products that present a networkwide view of traffic flow and the ability to configure Cisco and Bay Networks, Inc. routers. Cisco had focused on managing its own routers through its Ciscoworks tool.

The Netsys Enterprise/Solver tools have allowed the IS group at Sprint Corp. in Westwood, Kan., to test changes in advance and check the integrity of the network as it evolves by examining a model based on router configuration information, said beta-tester Dan Sevier, a network planning analyst at Sprint.

The new Netsys Advisor could help frontline managers troubleshoot immediate problems, Sevier said.

"Before pointing a protocol analyzer at the network and sending technicians out to check connection problems, they can look up the configuration data," Sevier said. "The Advisor eliminates problems by checking the network model to see if a router is aware of the other network."

Netsys Advisor collects data on router configuration and performance and generates reports to keep up with changes. QuickSolver isolates and explains problems in router configuration tables and recommends a fix. Netsys Advisor also requires Netsys Connectivity Tools, network modeling software that tests changes and distributes new router configuration files to save time and prevent errors.

Connectivity Tools starts at $5,000.

Global nets

CONTINUED FROM PAGE 63

support, he said.

"Today, I see a lot of diversity out there," Ward said. Companies need to find providers around the world with the best deal for service and price, he said.

Stuart Roberts, MIS manager at Holland Chemical International in Amsterdam, said he isn't impressed by carriers offering it all.

"Why would one carrier necessarily be the best everywhere?" said Roberts, whose company operates in North, Central and South America and Europe. "You might as well say AT&T should be the only carrier in the world, and why would you say that?"

For example, though Holland Chemical uses AT&T for voice services in the U.S., it recently picked Cable & Wireless PLC for a 22-site frame-relay installation here.

"It was easier to do business [with Cable & Wireless]," Roberts said. "You should go with who's willing to give you the best service."

Michael McKenna, an area manager of network services at the American International Data Center, Inc., said he recently looked at 37 countries for Integrated Services Digital Network service and scoured bids from all contenders who offered the service.

Madge's package: voice, video and data

By Kim Girard

SITTING ON ONLY about 200,000 desktops in the U.S., videoconferencing is, by most accounts, not taking the world by storm.

But Madge Networks, Inc. is making the sell more palatable with a base package that includes wide-area network access switching, inverse multiplexing to connect users to high-speed video networks, an eight-site multipoint control unit (MCU) for videoconferencing and network management software for $38,700. This approach differs from competitors PictureTel, Inc. and VideoServer, Inc., which offer products instead of network packages.

Madge faces an uphill battle, however.

"No vendor to date has been successful selling integrated voice, data, video networks," said Carl Howe, a senior analyst at Forrester Research, Inc., a Cambridge, Mass.-based consultancy.

But Madge's prices are lower than other companies' base MCU packages, which can range from $50,000 to $100,000. Service bureaus offer videoconferencing at $150 per hour per site.

Arcelio Moses, a research analyst at Memphis-based Baptist Memorial Health Care Corp., said his company invested $80,000 in a Madge video system.

"It's cheaper and will do what we want," Moses said. "This access switch lets us run voice, video and data on the same T1 lines."

Moses said the company now is ready to move videoconferencing access to hospital desktops using Integrated Services Digital Network (ISDN) connections.

They will add this to the current system, which uses ISDN at four sites within room videoconferencing systems.

Gary Ellis, director of media-based and distance learning at Southwest Missouri State University in Springfield, said the university used Madge equipment to establish a public videoconferencing network for distance learning.

The system connects six internal sites using Madge's switches and can also be used on the WAN. Satellite sites are connected by T1 lines to the main campus.

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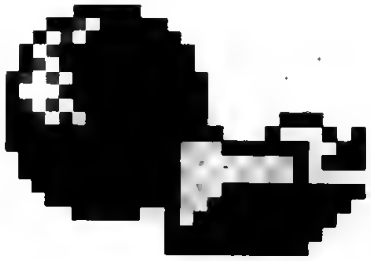

Fifty percent of the code is shared among Microsoft® Office 97 apps.

Netsys automates router fixes

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MADGE'S VIDEOCONFERENCING MENU

VideoSwitch multipoint control unit enables three or more parties to do videoconferencing

VideoSwitch Express does ISDN accessing and switching, has a four-site multipoint control unit and network management software

They will add this to the current system, which uses ISDN at four sites within room videoconferencing systems.

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Fifty percent of the code is shared among Microsoft Office 97 apps.

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The Internet

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DOLLARS SPENT ON INTERNET ADVERTISING

$80M $4B

Extrapolation based on a survey of 52 advertisers released this month

Source: Forrester Research, Inc., Cambridge, Mass.

Briefs

Netscape server unveiled

Netscape Communications Corp. recently started to beta-test a World Wide Web server for streaming audio signals. Media Server is aimed at users who want to broadcast sound in real time on public Web sites or intranets. It requires the company's Navigator browser and Media Player plug-in. Media Server is due for general release early next year.

Microsoft update

Microsoft Corp. posted to cdrom.microsoft.com last week an updated beta version of its Normandy Web server. It includes the Personalization System, software to track the preferences and identity of visitors at a given Web site.

HP supplies Netscape

Hewlett-Packard Co. last week announced a deal to provide technical support and [illegible] to Netscape Communications Corp. customers. [illegible] program will include instruction in Netscape Web [illegible] and match [illegible] to server administration.

CW.Internaut

▸ This is the tale of how one men with a passion for browsers sterted e Web site for browser buffs, put himself et the center of the Microsoft/ Netscape war, made e deal end plens to live happily ever efter.

By Kim S. Nash

AN ONLINE ARGUMENT in April 1995 kicked off a series of events that this summer allowed Dave Garaffa and his fiance Darlene to buy their first house.

Garaffa's hobby of tracking the technical minutiae of World Wide Web browsers led him to launch a major Web watering hole for browser users — not to mention a surprise source of income that later helped finance his mortgage.

Garaffa is a PC guru at Me-

CW.Internaut, page 72

Nonprofit Internet provider reinvents itself

By Mitch Wagner and Stewart Deck

APPLIEDTHEORY COMMUNICATIONS, Inc. is simultaneously one of the oldest and the newest Internet service providers around.

The company was formed in 1985 as NyserNet, a nonprofit organization dedicated to putting nongovernment organizations on the Internet. Later, it expanded and allowed corporations to become members of what was essentially an Internet cooperative organization. In this way, it put companies such as Eastman Kodak Co. and Chemi-

AppliedTheory, page 72

1985

1987

1989 Won $12M Advanced Research Projects Agency contract to build network for Defense Department

1995 Launched Web hosting service

1996 Became AppliedTheory Communications, a for-profit service provider

In Web E-Trust

▸ *Label will certify sites for security and privacy*

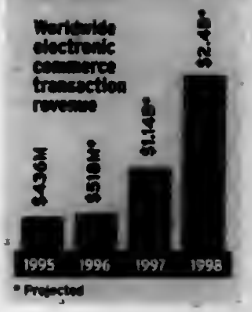
By Gary H. Anthes

THE ELECTRONIC Frontier Foundation (www.eff.org) and CommerceNet (www.commerce.net) recently joined to form ETrust, a label under which the two will work to establish consumer trust and confidence in electronic transactions.

The ETrust program (www.etrust.org) will offer certifications for companies that pass a series of security metrics monitored by the certification candidate and third-party auditors. Companies that meet the privacy and security guidelines will be able to license and display ETrust logos, or "trustmarks," at their Web sites.

Certification under the ETrust program carries no ironclad guarantee of conformance to privacy principles, but ETrust said it will randomly audit licensees and respond to users' complaints.

SHOP 'TIL YOU DROP



Source: Forrester Research, Inc., Cambridge, Mass.

Firefly Network, Inc. (www.firefly.net) in Cambridge, Mass., for example, will display trustmarks on its Web pages, which collect consumer information for "taste and preference profiles" sold to advertisers, said Karen Brown, the firms's director of brand communications.

Trust, page 72

The Internet

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DOLLARS SPENT ON INTERNET ADVERTISING

1996	2001
$900M	$8B

Estimates based on a survey of 52 advertisers released this month

Source: Forrester Research Inc., Cambridge, Mass.

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Hewlett-Packard Co. last week announced a deal to provide technical support and training to Netscape Communications Corp. customers. Training programs will include instruction in Netscape Web servers, starting next month with lessons in server administration.

Net security software

NetTegrity, Inc. in Waltham, Mass., recently introduced SiteMinder network security software. SiteMinder lets administrators control all activity on the various firewalls, Web servers and corporate intranets throughout the enterprise. It runs as an application on top of Microsoft's Windows NT Server. It will ship in January and will cost $20 to $50 per user, depending on configuration.

CW.Internaut

▶ This is the tale of how one man with a passion for browsers started a Web site for browser buffs, put himself at the center of the Microsoft/Netscape war, made a deal and plans to live happily ever after.

By Kim S. Nash

AN ONLINE ARGUMENT in April 1995 kicked off a series of events that this summer allowed Dave Garaffa and his fiance Darlene to buy their first house.

Garaffa's hobby of tracking the technical minutiae of World Wide Web browsers led him to launch a major Web watering hole for browser users — not to mention a surprise source of income that later helped finance his mortgage.

Garaffa is a PC guru at Me-

CW.Internaut, page 72

Nonprofit Internet provider reinvents itself

By Mitch Wagner and Stewart Deck

APPLIEDTHEORY COMMUNICATIONS, Inc. is simultaneously one of the oldest and the newest Internet service providers around.

The company was formed in 1985 as NyserNet, a nonprofit organization dedicated to putting nongovernment organizations on the Internet. Later, it expanded and allowed corporations to become members of what was essentially an Internet cooperative organization. In this way, it put companies such as Eastman Kodak Co. and Chemi-

AppliedTheory, page 72

NyserNet history

1985 Founded as a nonprofit corporation for building and managing nongovernment Internet Protocol networks

1987 Signed on commercial customers: IBM, General Electric and Kodak

1989 Won $12M Advanced Research Projects Agency contract to build network for Defense Department

1995 Launched Web hosting service

1996 Became AppliedTheory Communications, a for-profit service provider

In Web E-Trust

▶ *Label will certify sites for security and privacy*

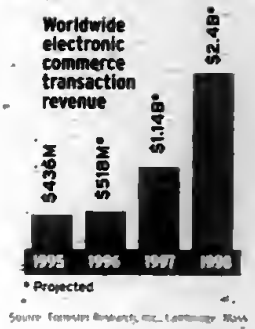
By Gary H. Anthes

THE ELECTRONIC Frontier Foundation (www.eff.org) and CommerceNet (www.commerce.net) recently joined to form ETrust, a label under which the two will work to establish consumer trust and confidence in electronic transactions.

The ETrust program (www.etrust.org) will offer certifications for companies that pass a series of security metrics monitored by the certification candidate and third-party auditors. Companies that meet the privacy and security guidelines will be able to license and display ETrust logos, or "trustmarks," at their Web sites.

Certification under the ETrust program carries no ironclad guarantee of conformance to privacy principles, but ETrust said it will randomly audit licensees and respond to users' complaints.

SHOP 'TIL YOU DROP



Source: Forrester Research, Inc., Cambridge, Mass.

Firefly Network, Inc. (www.firefly.net) in Cambridge, Mass., for example, will display trustmarks on its Web pages, which collect consumer information for "taste and preference profiles" sold to advertisers, said Karen Brown, the firm's director of brand communications.

Trust, page 72

Trust in electronic transactions

CONTINUED FROM PAGE 71

Brown said Firefly customers, who use Firefly's software tools for segmenting and targeting their customers, may use ETrust as well.

The logos will offer some assurance of security and privacy, said John Pettitt, chief technology officer at CyberSource Corp. in San Jose, Calif. "After all, privacy doesn't have much meaning if the machine isn't secure," he said.

Lack of trust is a significant impediment to electronic commerce, said Lori Fena, executive director at the Electronic Frontier Foundation in San Francisco. "If you stand in front of a room full of people and ask, 'When you hit a Web site that asks you to register, how many of you leave the site?' about half the hands will go up," she said.

And those who do register often put in bogus data because they don't trust the Web site owner to protect their privacy, Fena said.

There have been several intercompany initiatives in the past two years to develop technology and standards for secure commerce. ETrust is the second effort in recent months that aims at improving privacy and security, largely by voluntary compliance and supplemented by random audits.

In August, the Council of Better Business Bureaus, Inc. (www.bbbonline.org) in Arlington, Va., sought to establish an "ethical online marketplace" by offering a digital seal of approval to online businesses that meet strict criteria for truthful advertising, quality service and fair handling of customer complaints..

An ETrust licensee will be given a trustmark that indicates it has agreed to do the following:

- Explain its information-gathering practices.
- Explain to users in advance what personal data is being gathered, what it is used for and with whom it is being shared.
- Not monitor personal communications such as electronic mail.
- Not display or make available name or contact information unless it is explicitly approved by the user.

Three kinds of trustmarks are possible, each with additional guarantees. Under the strictest level, the site promises to gather no personal data on users. Under the most liberal, sites can give user data to third parties that also comply with ETrust guidelines, but users can view and correct that information.

Licensees will be required to submit a document outlining their security policies and mechanisms, Pettitt said.

CW.Internaut

CONTINUED FROM PAGE 71

morial Sloan-Kettering Cancer Center in New York, handling technical support for more than 1,500 cancer researchers (www.mskcc.org).

That's where he started BrowserWatch (www.browserwatch.iworld.com), a Web site that has become the place for insider technical information about Web browsers.

Garaffa, 29, launched the site after his attempt to start a moderated Internet discussion group devoted to browser technical talk was spurned following a "heated discussion" among the regulars at Usenet group comp.infosystems.www.

People liked the site and began to send Garaffa their own tips. Then insiders at Microsoft Corp. and Netscape Communications Corp. started to leak secrets about upcoming products. In those days, even Netscape founder Marc Andreessen dished dirt.

Garaffa soon came to live in the middle of the browser war.

Both Microsoft and Netscape follow closely his statistics on the browsers used by BrowserWatch visitors. Microsoft has been known to quote BrowserWatch figures as evidence that Internet Explorer is gaining ground on Navigator. But Garaffa doesn't take the war as seriously as Microsoft and Netscape do.

IT'S A WONDERFUL LIFE

So what does this have to do with a new house and a white picket fence? Frank Capra fans will love what comes next.

As BrowserWatch's audience grew from a few dozen faithful in mid-1995 to a crowd large enough to generate about 5,000 hits per day, Garaffa was thinking about marriage.

However, he didn't want to propose to his sweetheart until he could close on the New Jersey house he and Darlene wanted.

That didn't look likely. "I thought I had enough of a nest egg," Garaffa said, "but I didn't."

Then Mecklermedia Corp. in Westport, Conn., a publisher of Internet magazines and Web sites, sent him an electronic-mail message about buying BrowserWatch.

"It was like someone saying to you, 'I want to buy your old shoes for a lot of money.' " Garaffa said. "I never thought of it as a salable item."

Almost a year to the day after the launch of BrowserWatch, Mecklermedia picked up rights to the site for less than $20,000. But the money — cash — helped cinch the down payment, with enough left over to put some in the bank.

Now Mecklermedia hosts the site and sells advertising on it. Garaffa still has editorial control and spends at least three hours each day working on it after coming home from Sloan-Kettering.

Oh, the wedding is set for Sept. 21, 1997.

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AppliedTheory 'net provider

CONTINUED FROM PAGE 71

cal Bank on the Internet.

But the company recently went through a complete transformation, amending its charter to become a for-profit business and changing its name to AppliedTheory. The company has $10 million in revenue so far this year and anticipates $16 million by year's end and $25 million next year.

AppliedTheory offers NyserNet's services, including World Wide Web site outsourcing and training on how to build and run an intranet.

Hundreds of companies now offer Web hosting services, ranging in size from Global 100 companies such as AT&T Corp. and IBM to small local providers.

AppliedTheory's service has a twist — it was designed specifically for large companies that already have Web sites but have been overwhelmed by bandwidth needs and personnel demands.

The Web outsourcing service should prove popular, said information systems manager Shel Kaphan, vice president of research and development at Amazon.com, Inc.

"To scale up a big Web site and keep up with demand, you want someone who has the network bandwidth resources and computing resources," Kaphan said. "It's not the kind of thing that just any company is in a position to do."

The network bandwidth and computing resources attracted Education Showcase, Inc. to AppliedTheory's offerings. The Web site builder in Syracuse, N.Y., leases a server from AppliedTheory for approximately $800 per month, said Richard Tkachuck, vice president at Education Showcase.

"It's a very good arrangement," Tkachuck said. "A server goes out on a 10Base-T to a triple T3 line. I couldn't afford that coming out of my office." Tkachuck looked into setting up shop with "a Unix server, a Sun station and a 256K [bit/sec.] line coming in," but the price tag for that arrangement would have run between $45,000 and $50,000, Tkachuck discovered. "AppliedTheory's service is a godsend for small businesses," he said.

AppliedTheory competes against just about every major company in the computer industry. It hopes to capitalize on the basis of its long experience as an Internet service provider.

Pricing for the Web outsourcing service starts at $99 per month. But more typical pricing is $1,500 per month for about 100M bytes of storage and 250M bytes of downloading per month.

AppliedTheory also offers intranet training, an intensive service designed to educate key IS staff. It is typically priced at $1,500 to $3,000 per day for 15 people. Total pricing for the service is typically $50,000 to $200,000.

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Tool eases Web database connection

By Mitch Wagner

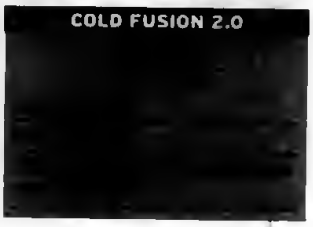
ENABLING WORLD WIDE WEB pages to display up-to-the-minute data extracted from databases is a key feature in the upgraded version of Allaire Corp.'s Cold Fusion development tool.

Many tools link databases to the Web, but Allaire's twist is that Cold Fusion 2.0 was designed specifically for professional Web developers conversant in Hypertext Markup Language (HTML). The software, now available, adds proprietary extensions to HTML in a language called Cold Fusion Markup Language (CFML), which was designed to be easily learned by anybody who knows HTML.

The product lets HTML developers write their own calls to a database without having to pull in a database developer to do the job, Allaire officials said.

"Cold Fusion allows one to rapidly prototype and develop a system by cutting out a lot of additional development work," said John Hokkanen, law practice technologist at law firm Allston & Bird in Atlanta. "You don't have to maintain the server and database connection — it just gets taken care of."

"Cold Fusion gives me the control and flexibility to do what I want," said Michael Kane, a developer at a large East Coast financial company. The product allows him to set up pages to lay out data in



precisely the fashion desired and to query multiple databases at once.

Kane said the software replaces server scripts, most of which are written in Perl and other Unix programming languages and can be cumbersome and difficult to program.

DO-IT-YOURSELF

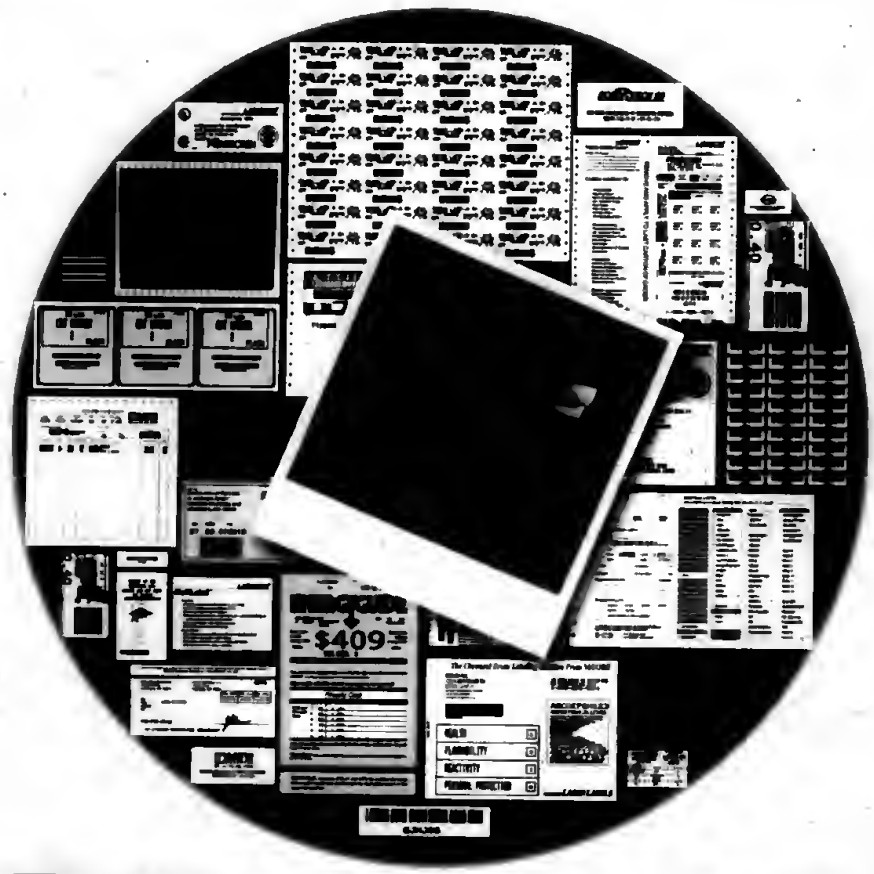
Competitive products include the new Internet Studio and FrontPage 97 from Microsoft Corp., Sapphire/Web from Bluestone Consulting, Inc. in Mount Laurel, N.J., and gateways from the major database developers, including Oracle Corp. and Informix Corp. However, these and other database products may be graphical and require professional database developers.

Because of the similarities between HTML and CFML, Web developers can create links to a database via Microsoft's widely used Open Database Connectivity interface without having to call in a database programmer.

The new version includes the ability to send and receive data from files as well as databases. It also has more flexible support for different kinds of queries and support for standard application programming interfaces to Web servers, such as NSAPI from Netscape Communications Corp.

The software includes support for Simple Mail Transfer Protocol to allow data to be sent via electronic mail as well as through direct database connections.

Cold Fusion is available for evaluation at www.allaire.com.



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technical reasons why Netscape

uses Silicon Graphics WebFORCE servers,

according to Webmaster Robert Andrews.

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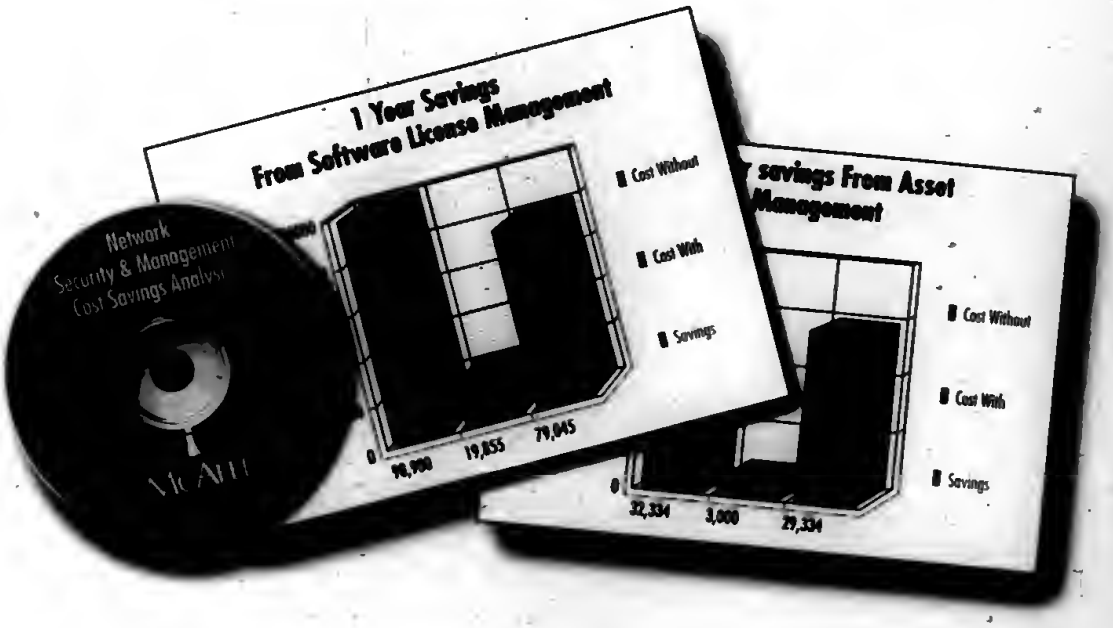

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Desktop Management	X	NO	X
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Encryption	X	NO	NO
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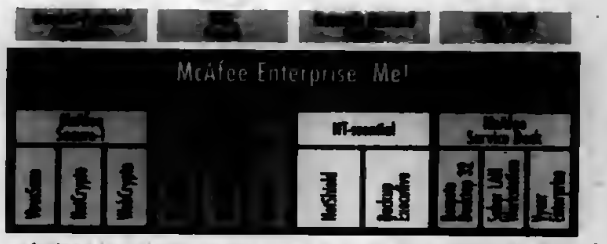

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*File transfer over phone lines

Source: Creative Networks, Inc., Palo Alto, Calif.

Briefs

Web site launched

A group of hardware, software, consulting and publishing companies last week launched a World Wide Web site (www.securitybefs.com) devoted to information security.

The site will serve as a reference area for online security questions and data. It also will contain resources that explain security concepts and provide links to other security-oriented Web sites.

Citicorp names IS chief

Citicorp has named Mary Alice Taylor to the newly created position of executive vice president.

Taylor will oversee the New York-based bank's worldwide processing and transaction systems. Taylor, who will report directly to Citicorp Chairman John S. Reed, had been a senior vice president for the U.S. and Canada at Federal Express Corp.

Investment info on 'net

Fidelity Investments last week revamped its Web site (www.fidelity.com) to include more interactive and multimedia features. The site is aimed at both professional investment counselors and individual investors and includes interactive financial planning tools.

The site also includes a daily audio news report that features current market quotes and data on domestic and international markets. And there is a forum in which investors can pose financial questions to a board of Fidelity investment counselors.

YEAR 2000 ISSUES

Visa gets credit for early compliance

By Charles Babcock

BY THE TIME the new century arrives, Janice VandenBrink will have been staring at Visa International, Inc.'s year 2000 problem for five years. But she has already learned some valuable lessons.

As in most companies that face year 2000-compliance issues, Visa's information systems have presented a business problem.

TRANSACTIONS

Visa does business through 20,000 banks that issue Visa cards, which means the banks all must be year 2000-compliant after 1999 or Visa must be able to recognize noncompliant dates when they are entered in to its systems.

Visa's core systems need to clear credit-card transactions for cardholders who have expiration dates two, three and even five years in the future.

To be safe, VandenBrink, senior vice president in charge of Visa's year 2000 redevelopment effort in Foster City, Calif., started the year 2000 project last year. Visa is installing protective measures against noncompliant code. It also is making its testing scripts for suspect code available to member banks.

"I know we will finish by the end of 1998. We're reserving 1999 as an architecture year," so Visa will have a full year of working with the revised code before 2000 arrives, Vanden-

Visa, page 80

CINDY CHARLES

Deregulation of utilities recasts IS manager role

By Bob Wallace

BEING AN IS MANAGER at an electric utility these days is more than a job — it's an adventure.

In the wake of recent industry deregulation, electric companies are rushing to diversify.

While these efforts to develop new sources of income promise exciting opportunities for some information systems managers, the trend also means a heavier workload with longer hours, additional education, more travel and new staffing concerns.

"I've gone through a five-month transition during which I essentially worked as an IS manager wrapping up networking projects and as a technologist getting together the technology side of the business plan for our new telecom venture," said John Scoggin, chief technical adviser at Delmarva Telecommunications, Inc., a unit of Delmarva Power & Light Co. in Wilmington, Del.

Deregulation, page 80

JUDITH ROSENBERG

"There will be no end to the gnashing of teeth over deregulation. But I think in the long run, it'll all be worthwhile. Everybody stands to benefit."

Real-time curriculum

▸ *CorporateU offers up-to-date software training*

By Julia King

FORGET REQUIRED COURSES, cramming for exams and other images typical of university life.

This is CorporateU, where the students and teachers are all software developers, and the curriculum changes from quarter to quarter, depending on which programming skills are most in demand.

CorporateU doesn't cost a fortune either. An eight-week course in Visual C++ or Java costs about $500, and that includes the textbook.

In fact, the idea behind the Philadelphia-based training company is to be as different as possible from traditional universities, which can take up to a year to develop new software curricula.

"In the software industry, a year is an eternity. As a result, college, university and technical school programs have been relegated to the training of entry-level skills," said Robert Radcliff, an adjunct professor of computer science and software engineering at Pennsylvania

CorporateU, page 80

"We're expecting a lot more competition in Mexico over the next year, so we've got to have the best technology and the best response times that we can."

JAIME FLORES OF VOLKSWAGEN'S MEXICAN SUBSIDIARY, ON THE COMPANY'S INTERNET-BASED PARTS ORDERING

See story, page 84

Visa meets year 2000 early

CONTINUED FROM PAGE 79

Brink said. Most analysts say companies will need to complete their year 2000 reprogramming by the end of 1998, as Visa is doing. That will give companies enough time to test programs across a full year of time-sensitive monthly and quarterly closings.

"Otherwise, you really won't know what to expect when the millennium arrives," said Jim Jones, managing director of the Information Management Forum, an Atlanta-based executive user group for Fortune 1,000 firms.

The good news for Visa is that it will have all of 1999 to evaluate its work. But getting to that point took a lot of work.

DATE-CHANGE ISSUES

VandenBrink said one of the most important year 2000 projects was to comb software code and search for the "wrong" spots. Visa did that when it first tackled the credit-card authorization system, transaction clearance system and 20 other mission-critical applications that represent 40% of the company's processing load, VandenBrink said.

But it isn't enough to identify the occurrence of dates or map multiple systems changes. You must change the dates in an application and test them to see what breaks before going on to the next application, VandenBrink said. "If you wait to do everything at once, you'll never get there."

VandenBrink also cited these lessons:

- Testing revised code, not changing dates, is the real hurdle and can take as much as 50% of a year 2000 project's time.
- Cataloging the problem and designing a solution represents another 40% of the project's time.
- Actually changing code takes up only 10% of the project's time.
- Testing is so important that the test group should be an independent unit, not a subgroup of the redevelopment team.

VandenBrink said Visa has to worry about more than its mainframes. The need to track PC compliance was "the wake-up area for me" and gave more work to application redevelopers, she said. "Many client/server systems can handle the year 2000 [as four digits] but can't handle 00 when it comes down from a mainframe system," she said.

Visa spent between $15,000 and $20,000 on outside consultants. Viasoft, Inc. provided five consultants, and its Alliance software tool proved valuable in tracking dates, logic paths and other variables, VandenBrink said.

Senior editor Thomas Hoffman contributed to this story.

Deregulation of utilities changes role of IS manager

CONTINUED FROM PAGE 79

"It's very exciting to start something from scratch. But I've been logging 80-hour weeks for a long time, and that may continue" for another seven months, Scoggin added.

Like many other electric companies, Delmarva chose to resell capacity on its high-speed private network. This makes the utility a telephone company, too.

Scoggin said Delmarva Telecommunications would offer capacity on its 400-mile fiber network to carriers that want cheaper rates than those from Bell Atlantic Corp. or alternative communications paths in Delaware. It will offer specialized data and video services in 1997.

A NATURAL EXTENSION

Utilities are well-positioned for this line of business, as most have been operating high-speed private networks to link substations and power plants since their inception. "Reselling telecom services is just a natural extension of what we do now," Scoggin said.

A key concern for Scoggin is staffing the new venture. "We've brought over a few engineers from Delmarva Power, but we're going to have to start hiring from scratch," he said.

In New England, Northeast Utilities, Inc. in Berlin, Conn., was the first major electric utility to take the plunge after deregulation took effect. Northeast Utilities joined with another utility to form a unit that will initially resell capacity on a growing fiber network to carriers and possibly later to users.

"Any time an industry reshuffles, you can expect an onslaught" of changes, said John Boyd, chief technologist at Northeast Utilities. "There will be no end to the gnashing of teeth over deregulation. But I think in the long run, it'll all be worthwhile. Everybody stands to benefit."

Other utilities plan to eventually follow Northeast Utilities' lead.

Earl Perkins, manager of network projects at Entergy Services, Inc., said the regional electric utility in Gretna, La., has been looking at several opportunities.

The process "has me traveling to home automation services shows and conferences on delivering broadband services to residences. The goal is to gather enough information to make informed decisions on what to trial and what not to trial," Perkins said. "We'd like to learn from the early mistakes of others."

Market drives CorporateU class offerings

CONTINUED FROM PAGE 79

State University's Great Valley campus and president of CorporateU.

CorporateU, by contrast, offers new courses four times per year, and its schedule of classes is purely market-driven. Its fall roster includes evening courses in programming languages such as Microsoft Corp.'s Visual Basic 4.0, C, C++, Sun Microsystems, Inc.'s Java and Powersoft Corp.'s PowerBuilder.

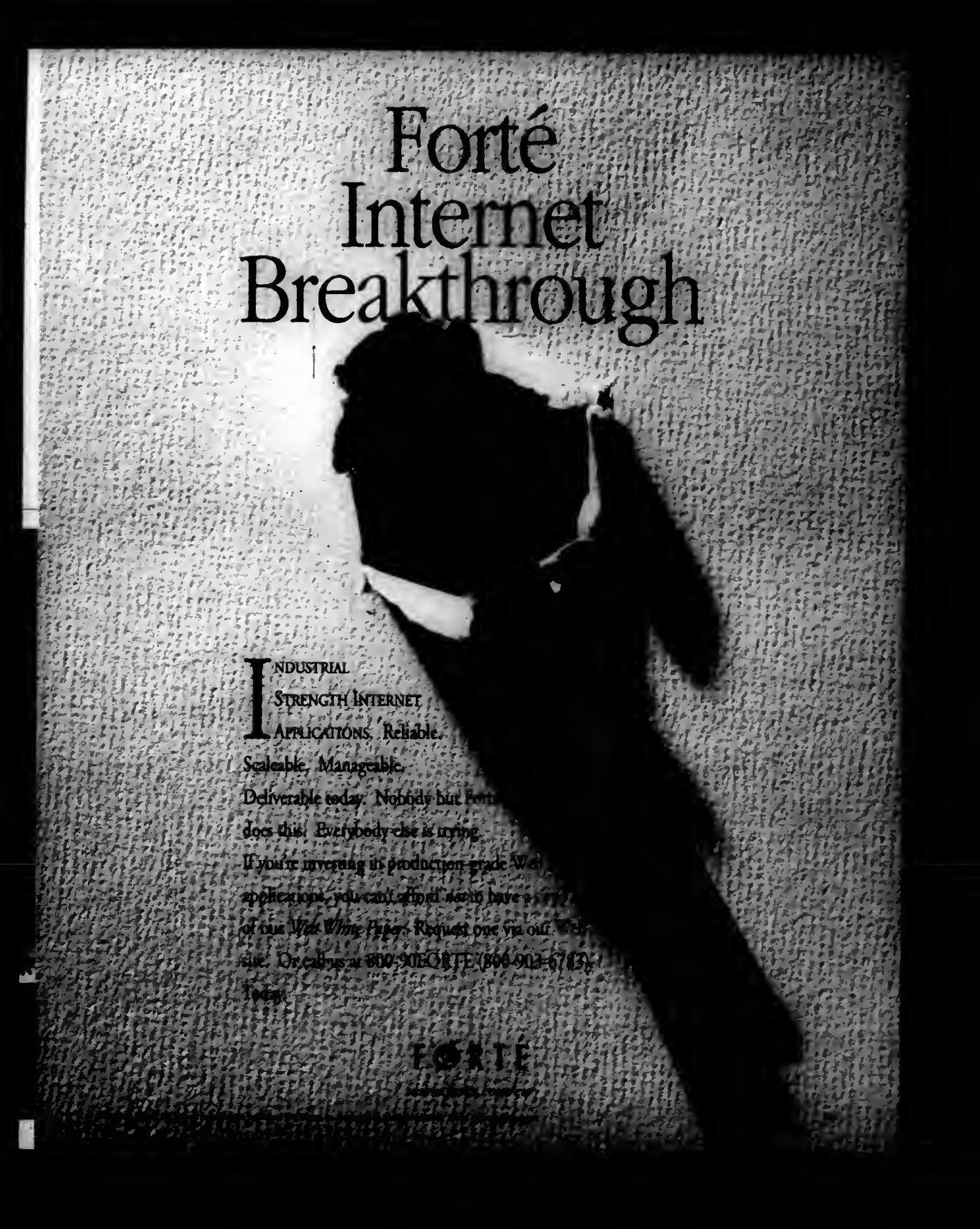
It also offers one-day Saturday seminars on topics such as "Building a Web Server" and "Mastering SQL." On-site classes customized to fit a company's needs are available as well. And unlike a lot of on-the-job training, courses aren't compressed into two or three days. Instead, students attend one three-hour session per week for eight weeks. During classes, there is no hands-on training, just three hours of instruction by one of 17 part-time instructors whose full-time work at other companies involves developing applications in the same languages they teach CorporateU students.

A $500,000 company founded in 1992, CorporateU hopes to expand beyond Philadelphia to other cities through franchising agreements.

Because of their industry experience, CorporateU's instructors can be mentors to students "who don't have that guru person on the job," Radcliff said. Instructors continually modify courses to include current development techniques that they use on live projects.

Paul Wallowitch, a software engineer at Checkpoint Systems, Inc., a Thorofare, N.J.-based maker of antitheft devices, has taken CorporateU's eight-week courses in C++ and Microsoft Foundation Libraries. "With a lot of other courses, we'll take three days of intensive training and that's it. The negative is you're cramming everything," Wallowitch said. "But with the course spread out over eight weeks, you can work with it a while, then come back and ask a question."

CorporateU student David Ritter, a senior systems analyst at a New Jersey financial services company, said he likes learning what he needs for his job, but on his own time. "I take courses outside business hours so it doesn't affect any of my business priorities," said Ritter, whose company pays for his training. "I also don't have to schedule a whole block out of a development cycle to free up people on a project to go to training."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Solutions for a small planet IBM

VW rides information highway south of border

By Thomas Hoffman

VOLKSWAGEN AG'S Mexican subsidiary is rushing to get an Internet-based spare parts ordering system online to cut time and costs in the wake of increased competition.

Internet-based order management systems are just starting to catch on in automotive manufacturing, analysts said.

"There are some real advantages for companies like Volkswagen to use the Internet to connect smaller dealerships that can't otherwise play in the [electronic data interchange] space," said Waverly Deutsch, an analyst at Forrester Research, Inc. in Cambridge, Mass.

LAG TIME

Whenever one of Volkswagen-Gedas NA's 200 Mexican dealers wanted to order spare auto parts, most of them had to enter the order on a diskette. Then they often had to wait more than a week for manufacturing to receive the order and turn it around for them.

Those kinds of delays are unacceptable in Mexico's business environment in the era of the North American Free Trade Agreement, which was designed to break down trade barriers. Recent entrants in Mexico — Toyota Motor Corp., Daimler-Benz AG and BMW NA — are battling Volkswagen (VW) and other players for consumer dollars.

When Volkswagen's World Wide Web-based spare parts ordering system goes live in January, the firm's Mexican dealers may be able to order more than 1 million parts annually using Microsoft Corp.'s Internet Explorer 3.0 Web browser software.

The dealers also may be able to receive shipments within 24 hours.

The system, which is part of a $35 million investment in SAP AG R/3 manufacturing and distribution software and related hardware, is expected to deliver $50 million in cost savings in the next three years, said Jaime Flores, a software manager at VW-Gedas in Puebla, Mexico.

Jaime Flores

VW-Gedas needs the best technology possible to compete

The savings will result from lower inventories at dealer sites. This will serve to lower costs to manage those inventories, Flores said.

Although the cost savings is impressive, the goal of the Internet-based spare parts system is to improve customer service, Flores said.

"We're expecting a lot more competition in Mexico over the next year, so we've got to have the best technology and the best response times that we can," he said.

HIGHER VOLUME

Volkswagen has been manufacturing the Jetta and new Beetle models in Mexico since August, and the company expects the increased production to create greater demand for spare parts south of the border.

Production volume on these models is expected to increase from 1,000 cars per day to 1,700 cars per day in the next year.

Until recently, fewer than 40 Volkswagen dealers could order spare parts through an IBM CICS mainframe transaction system, Flores said.

The parts were ordered over Telepac, a public network that is slow and unreliable.

To make its Internet connection, Volkswagen uses the Cactus tool from Information Builders, Inc.

Cactus is an application development workbench that is used to create a Web interface between the SAP spare parts module and the Microsoft Internet Explorer browsers that Volkswagen dealers have used since July.

Flores says Cactus is easier to use than Sun Microsystems Inc.'s popular Java software because it is easier to learn.

COMMENTARY

Conference complaints

THOMAS HOFFMAN

ARE TRADE SHOWS and industry conferences giving you enough bang for your buck?

The question gnawed at me after I returned from the latest of a cluster of nondescript information management conferences.

Most, if not all, of the IS managers I spoke with at these powwows registered what has become an all-too-common complaint: Most of the case studies at these conferences were presented from an atmospheric 50,000 feet up and didn't include the down-and-dirty details about project failures, money invested and saved or how the IS staff was affected by these initiatives.

Conference attendees said the same thing. The best ideas they got came from networking with their peers.

Granted, for many time-constrained IS managers, the only opportunity to share experiences with peers is at one of these get-togethers. But for the $4,000 you plucked out of your travel budget to attend, you should expect more than a few anecdotes over cocktails — not to mention the productivity costs of sending your top IS staffers out of the office for three days.

It's time for conference organizers to enforce stricter guidelines and structure the sessions more effectively.

For example, don't cram five CIOs' presentations into a 90-minute hole. In a 20-minute window, speakers gloss over project accomplishments and fail to enlighten their audience.

Attendees would rather listen to one informative speaker than three mediocre ones. In this case, less is more.

Also, conference attendees don't want to hear sales pitches from vendors. (Masochists can get all they want on the show floor.) If vendors are included in a panel discussion, organizers should make sure they stick to the topic — or get yanked.

As a matter of course, most case studies tend to accentuate the positive aspects of a project. But audiences also want to know what went wrong and what the speaker's organization did to fix it. Conference organizers historically have had a tough time finding speakers who are willing to share intimate details about their organization.

Public relations departments typically screen what their executives plan to say in a room full of potential rivals. But how much proprietary information is given away? Not much, if any.

To get around this problem, speakers need to convince their PR staff that they aren't giving away trade secrets when they tell an audience that Oracle financial software helped save their company a certain number of dollars within 24 months. Or that they invested $300,000 in new software and training. If the honchos still are squeamish, see if they'll agree to your use of percentages. Say, for example, that a migration to a client/server system cut a certain percentage of overhead costs.

For the $4,000 you plucked out of your travel budget to attend, you should expect more than a few anecdotes over cocktails.

People are impressed with results, and organizations that can quantify their successes often are looked upon as leaders.

Sure, reporters like me have a vested interest in snatching as many details out of these sessions as we can for the stories we write, so I have something to gain here.

Like reporters, session attendees will stand in line to extract the information they need to assist their own projects. That can be frustrating when the line is 50 people long and the speaker has to leave to make room for the next session.

But, really, if you paid for the session, you shouldn't have to wait for the paper to come out to get the juicy details.

Hoffman is Computerworld's senior editor, IS management.

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Annual Skills Survey

the GREAT SKILLS chase

By Linda Wilson

It comes as no surprise to anyone who has been in the computer technology job market this year: It's an employee's market, big-time. But wait, it gets better. Hotter skills, higher salaries: The year ahead just could be the best time yet to be working in information systems.

Computerworld's 1996 Skills Survey found that employers will scramble to find experienced people in just about every skill set, including PeopleSoft implementations and Novell's NetWare administration.

Meanwhile, IS professionals who have up-to-date skills can be choosy about the positions they accept. And they can command top dollar.

The great skills chase, page 90

Next year, companies will be positively desperate to find the right talent with the hottest skills. So much so, that nearly every major technical skill now comes at a high price.

IDC INSIGHT

Successfully Migrating

Corporate America is fast embracing Windows NT workstation for its desktop computing as it seeks a true multitasking, robust, 32-bit OS with reliability, security, and high performance. The Pentium Pro, offering superior speed and performance, is far and away the preferred platform for NT. These were among the key findings of IDC's recent global survey of 1,500 corporate enthusiastic NT adopters and active evaluators.

International Data Corporation (IDC), the world's leading information technology (IT) research firm, recently surveyed 1,500 medium-sized and large corporations around the world about their advanced desktop PC usage and plans via in-depth telephone interviews. Primarily, the research analyzed how corporations are currently using and adopting advanced Windows NT/Pentium Pro systems and what users found as key drivers and constraints. The study focused on advanced adoption so that organizations adopting less than 10% NT systems among their total systems, within the next two years, were excluded from the survey.

The market momentum for NT/Pentium Pro systems will intensify over the next 3–18 months, especially among U.S. corporations. Key drivers for this upward migration include the accelerated price/performance improvements of the Pentium Pro; the increasing availability of 32-bit applications; and recent release and success of Windows NT Workstation 4.0. IDC predicts 1998 to be the pivotal cross-over year when U.S. Pentium Pro Processor PC U.S. sales will exceed Pentium Processor PCs overall, and when NT will surpass Windows 95 on desktops in large corporations.

Key Advanced PC Study Findings

- By YE 1997, half said at least 50% of new PC purchases will be Pentium Pros.
- Corporate user plans by late 1997 include the following:
  - 150% increase in Windows NT
  - 50% decrease in Windows 3.X
  - 50% increase in Windows 95
- Within two years, the majority of internal application development will be 32-bit.
- Reliability, security, and performance are top reasons for choosing NT over Windows 95.
- Twenty-five percent of respondents will gradually roll out NT company-wide; 50% will roll out NT selectively.
- Key NT applications are general office, software development, technical/engineering, customized business, and multimedia.
- Performance and speed are top benefits of running NT on Pentium Pro PCs.
- Cost, hardware requirements, and incompatibility with existing software/peripherals key barriers to adoption.

Why Upgrade to Advanced PCs?

Corporate PC users are constantly seeking better CPU performance, more memory, faster data access times, and more powerful OS and application suites. In the late 1990s, technology continues to accelerate with more intensive requirements due to the increase in the size of applications and graphics-intensive files; expanded multimedia data types (color images, audio, and full-motion video); the inclusion of more software (Web browsers, utilities); and the constant IT mandates to cut costs and improve productivity. In addition, the tremendous growth in the Internet, Web, and corporate intranets is bringing ever-greater amounts of data to the desktop.

Recent and unprecedented price/performance improvements in advanced PC systems have whetted organizations' appetites. IDC PC pricing research indicates the cost of Pentium Pro systems will decline a full one-third to nearly half (or 33–47%) from the beginning to the end of 1996, depending on chip speed. As an industry example, consider the advanced desktop offerings in late 1994 vs. late 1996 from AST Computer. AST's high-end brand series has dropped in price by more than one-third, from about $4,300 to about $2,850 in estimated street price, while the overall performance offering has more than doubled. In short, there has never been a time in which corporations have needed advanced desktop PCs more, nor a time in which cost justification for upgrading has been stronger for the business enterprise.

Pentium Pro—Platform for and to the Future

The Pentium Pro, Intel's sixth generation microprocessor family, released in late 1995, was specifically designed to optimize the performance of 32-bit code while maintaining backward compatibility with previous x86 code. In essence, the chip is a bridge between today's world, which predominantly uses 16-bit OS (Windows 3.X) and applications, and the emerging world of 32-bit OS (NT, Windows 95) and applications, which is fast becoming the industry desktop standard. The Pentium Pro also offers unparalleled speed and performance through its superscalar and superpipeline design; Intel's "Dynamic Execution," and its L2 "cache on-board" dual-chip module.

As prices further decline, IDC predicts that demand for Pentium Pro PCs will increase significantly, especially in the corporate environment. Current street prices for NT/Pentium Pro systems have now fallen to less than $3,000—within the range of most corporate IT budgets. Accelerating price competition and expanded product selection will continue through 1997, which will further fuel the market. IDC anticipates Pentium shipments will peak in 1996, and the Pro, with 15 million units, will surpass Pentium sales (13.9 million units) as the dominant PC platform in the total U.S. market by 1998 (see Figure 1).

The Corporate Move to Windows NT

Migration to the 32-bit desktop enables true multitasking, improved stability, virtual memory, multiprocessing, and robustness. More than half (53%) of those IDC surveyed currently do 32-bit application development. Key drivers of 32-bit adoption cited by the IDC user base included new application availability, price declines, performance gains, and the success of NT

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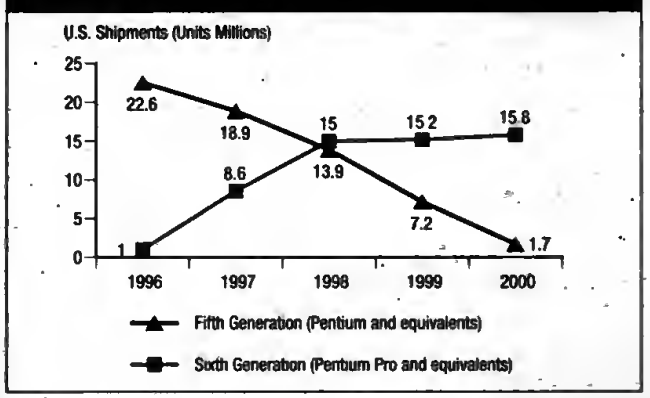
Figure 1 – Pentium vs. Pentium Pro Processor Ships



4.0. Within two years, three-quarters of all internal PC application development will be 32-bit.

Agaio, IDC user research bears out corporate America's preference of Windows NT over Windows 95 or any other OS. Corporate users surveyed included in their 12-month plans a 150% increase in the use of Windows NT. They saw a decrease of Windows 3.X or Windows for Workgroups use by about 50% and an increase of Windows 95 by only 50%. Users cited reliability, security, performance, and robustness, in that order, as the most important reasons for choosing Windows NT over Windows 95. The primary departments driving advanced desktop computer system purchases amoog IDC respondents are MIS/DP, engineering, and R&D-traditional leading technologists, as might be expected. Somewhat surprising, are the current applications users identified running under NT such as general office automation packages (word processing, e-mail, spreadsheets) or today's general mainstream desktop applications (see Figure 2).

Among corporations polled, the Pentium Pro was also the preferred platform to run NT. Fifty percent of respondents stated that at least half of all their new PC purchases will be Pentium Pro systems by the end of 1997.

The Call to Action

The decisioo of wheo and how to upgrade an IT iofrastructure is difficult and complex. Hesitating can be even more hazardous, possibly leading to forfeited opportunity costs and lost productivity. As we approach 1997, it is clear that the U.S. corporate migration process to NT/Pentium Pro PCs is far beyond initial assessments.

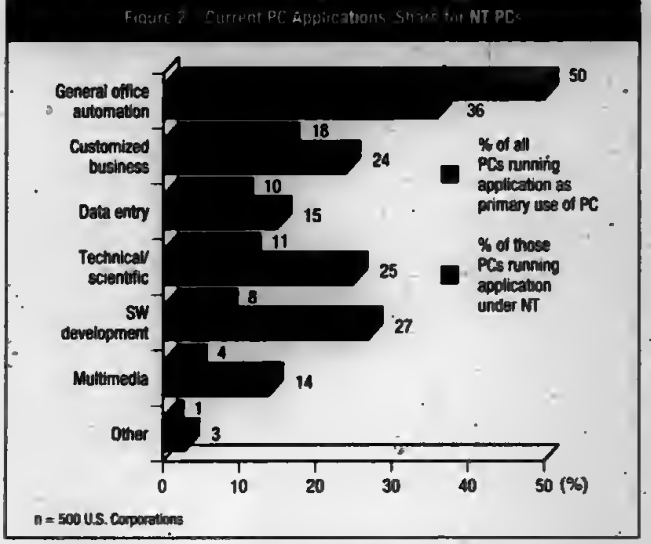
Perhaps the only thing as important as choosing the right advanced PC is choosing the right vendor partner behind it. The top criterioo amoog the survey respoodents were price/value and technical support. IDC recommends users to look for PC vendors that push the price performance ratios and offer the most complete total value package. Closely examine what prospective vendors include in:

- Hardware (components, configurations, investment protection);
- Cost of ownership (virus protection, data and system management, real time diagnostics);
- Productivity enhancement (Internet/intranet, utilities);
- Vendor viability;
- Product quality and price/performance.

IDC predicts that 1998 will be the pivotal cross-over year when Pentium Pro outstrips Pentium U.S. sales overall, and NT surpasses Windows 95 on desktops within large corporarions.

Given its total value, performance benefits, and headroom, the time for serious consideration of NT is here. The collective experieoce and insights of 1,500 corporate users—senior IT managers already in upward PC migration, can greatly benefir an organizatioo's information technology design and planning.

Figure 2 – Current PC Applications Share for NT PCs



This insight was written independently by IDC and sponsored by AST Computer. For a complimentary copy of IDC's full White Paper on migrating to Next Generation PCs (Asian, European or U.S. versions available), please call AST at 1-800-447-0023 x 100 or check the AST Web site at http://www.ast.com

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the GREAT SKILLS chase

CONTINUED FROM PAGE 87

JUST CAN'T GET E

C&I Engineering's Marty Huffman finds himself fighting an uphill battle in his search for IS talent

MARTY HUFFMAN knows what college basketball recruiters go through. Like them, he's competing with dozens of other organizations for the rarest of individuals. Instead of hoop stars, though, he's looking for qualified folks to staff his information systems operation.

"It's almost like some of those recruiters for college basketball. They say, 'we have seen a seven-footer in sixth grade — go get him,'" says Huffman, director of information services at C&I Engineering, Inc. in Louisville, Ky. Huffman isn't the only one having trouble finding the right talent. The 1996 *Computerworld* Skills Survey confirms what most IS managers already know: It's an employees' market.

Based on the salary premiums managers paid this year to hire people, the hottest skills span all fields, from knowledge of development tools to relational database administration.

Nearly all of 90 skill areas surveyed garnered premiums for full-time staff, contractors or both.

Even with so many skills in demand, one area — client/server-based, enterprisewide business application packages — stood out from the rest.

That's because knowledge of any one of the modular product suites from Dun & Bradstreet Software in Atlanta; Oracle Corp. in Redwood Shores, Calif.; PeopleSoft, Inc. in Pleasanton, Calif.; and SAP AG in Walldorf, Germany, earned premiums. And of those suites, contractors experienced with PeopleSoft's products earned the highest premium of any skill — 28.8%.

Besides business application packages, other popular areas included products from Oracle, including Oracle Developer/2000 and Oracle relational database management systems, as well as products from Microsoft Corp. in Redmond, Wash., such as SQL Server, Windows NT and Windows 95.

Also in demand were people with knowledge of Internet and intranet platforms, year 2000 conversions and LAN and WAN experts.

There are a couple of reasons so many skills are in short supply, according to Gerald Lump, managing partner at the Source EDP office in Rolling Meadows, Ill. First, during the recession of the early 1990s, companies not only cut the personnel fat in their organizations, but they also cut the bone.

Second, there are more specialists today than ever before. "What happens is that as the number of specialists increase, your pool [for a particular skill] becomes smaller just because there are so many specialists out there," Lump says.

Taken as a group, the popular skills illustrate corporate IS' continuing march to client/server and, more recently, intranet platforms. The popularity of enterprisewide applica-

The great skills chase, page 93

Contractors at contract-recruiting firm Ballantyne Computer Service need only wait "two to five days before they get another contract," says Kristen Marqois, managing director at the firm.

TOM KOLOWSKI

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Not at Comdex this year? Don't worry, this calendar will be bound in the December 9 issue of Computerworld. Be sure to look for it!

the GREAT SKILLS chase

CONTINUED FROM PAGE 90

tion packages such as PeopleSoft clearly shows that many companies are now putting even bread-and-butter systems, such as manufacturing, logistics, human resources and finance, on downsized platforms.

Because many corporations have migrated to new products or technology faster than people can be trained, demand far exceeds supply.

That's precisely the problem Kristen Marqois faced this year. She's struggled to find people with experience in the popular enterprisewide application packages, particularly those from SAP and PeopleSoft.

"These are fairly new packages and there aren't enough people skilled out there," says Marqois, managing director at the Carmichael, Calif., office of Ballantyne Computer Service, Inc., a consulting, integration and contract-recruiting firm.

Faced with such a dismal hiring picture, Huffman has adopted creative strategies. For example, he scours high schools, technical schools and colleges for co-op students he can hire and train on the job.

"When we get a person that is available, I would say they're available for two to five days before they get another contract," Marqois said.

You don't have to explain to Catherine Rodewald the problems inherent in adopting popular platforms.

Rodewald spent a good deal of time this year recruiting staff. She added 10 people to the 32-person IS staff in the Dallas headquarters of Amresco, Inc., a diversified real estate financial services company. "It took anywhere from four to 10 weeks to fill each position," says Rodewald, vice president and chief information officer at the company.

Rodewald next year expects to add "one or two PowerBuilder programmers, two Internet application programmers, an Oracle programmer and at least one project manager," she says.

Rodewald says she expects to have trouble finding "PowerBuilder programmers and programmers that understand Java or ActiveX" Internet languages. She isn't alone. When asked what skills they are looking for in people they expect to hire next year, 13% of the IS hiring managers surveyed said Powersoft Corp.'s PowerBuilder programmers, and 10% said Java.

Huffman isn't happy to hear about the demand for Java and ActiveX programmers. He says he hopes to hire at least two of them next year.

Like Rodewald, Huffman also had trouble finding IS talent this year — a situation he attributes partly to the low unemployment rate in Louisville (3.9%) and the difficulty persuading applicants to move there.

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Developers aren't the only people in demand. Networking experts are high on the most-wanted list, too. "I've had trouble finding Novell [NetWare] people," says Parker Thomas, manager of technical support at Jervis B. Webb in Detroit. The company designs assembly lines for automotive plants and baggage-handling systems at airports.

Novell, Inc.'s NetWare continues to be a dominant platform nationwide, according to the *Computerworld* survey. This makes experienced people valuable.

And although the shortage hasn't been felt yet, 1997 promises to be a very big year for a very old skill — Cobol.

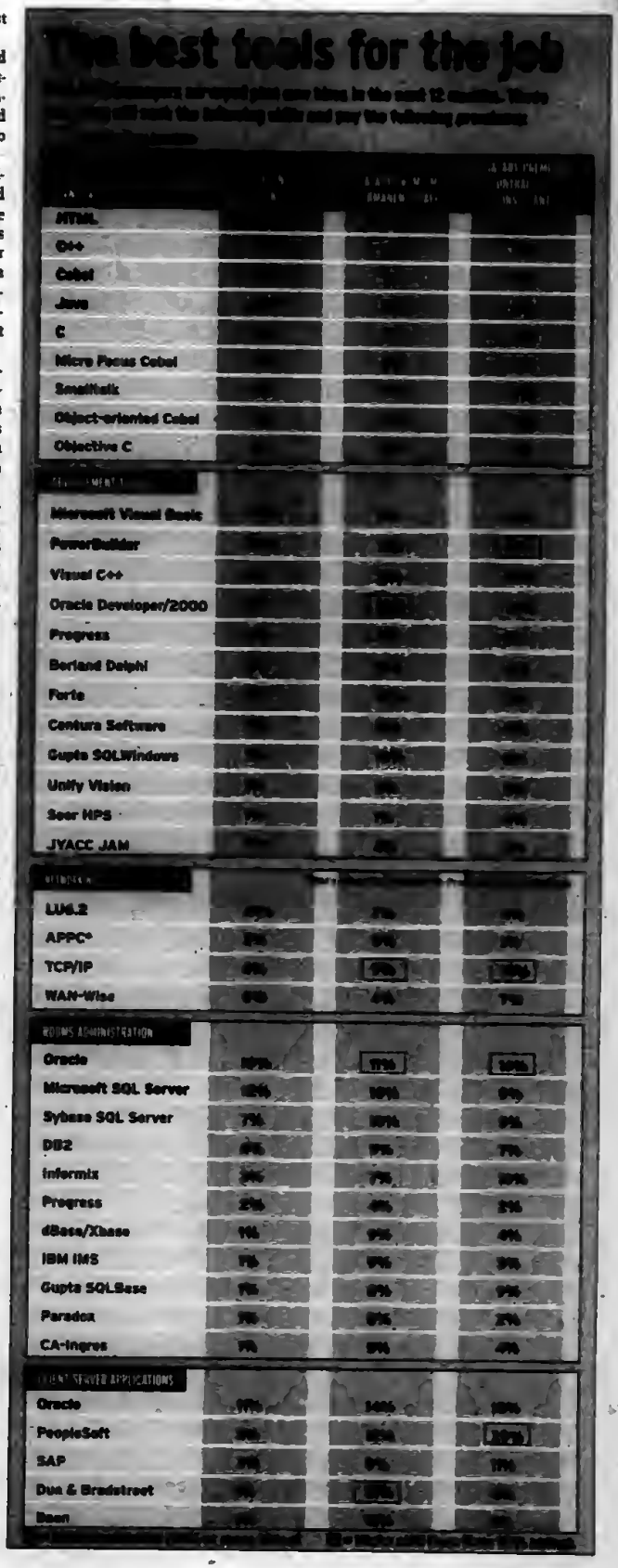
Driven by year 2000 conversion efforts, Cobol programmers and code-testers are expected to become some of the most sought-after IS professionals. So much so, that Janice Love, president of national recruitment firm People Unlimited in Matthews, N.C., predicts salaries for Cobol programmers will double to $80,000, plus sign-on and stay-on bonuses for year 2000 project staffers.

Top — and we're talking the very best — project managers can expect $150,000 salaries for the same efforts, with unlimited career opportunities when the projects run their course, Love predicts.

Love says these year 2000 projects won't compete for the rest of the IS labor pool.

Instead, they will fuel a huge supply-and-demand gap for Cobol programmers, project managers and consultants. This will push those professionals to the top of the most-wanted list and force firms to hire IS retirees and college graduates in record levels to fill those slots.

The great skills chase, page 94



the GREAT SKILLS chase

CONTINUED FROM PAGE 90

tion packages such as PeopleSoft clearly shows that many companies are now putting even bread-and-butter systems, such as manufacturing, logistics, human resources and finance, on downsized platforms.

Because many corporations have migrated to new products or technology faster than people can be trained, demand far exceeds supply.

That's precisely the problem Kristen Marqois faced this year. She's struggled to find people with experience in the popular enterprisewide application packages, particularly those from SAP and PeopleSoft.

"These are fairly new packages and there aren't enough people skilled out there," says Marqois, managing director at the Carmichael, Calif., office of Ballantyne Computer Service, Inc., a consulting, integration and contract-recruiting firm.

Faced with such a dismal hiring picture, Huffman has adopted creative strategies. For example, he scours high schools, technical schools and colleges for co-op students he can hire and train on the job.

"When we get a person that is available, I would say they're available for two to five days before they get another contract," Marqois said.

You don't have to explain to Catherine Rodewald the problems inherent in adopting popular platforms.

Rodewald spent a good deal of time this year recruiting staff. She added 10 people to the 32-person IS staff in the Dallas headquarters of Amresco, Inc., a diversified real estate financial services company. "It took anywhere from four to 10 weeks to fill each position," says Rodewald, vice president and chief information officer at the company.

Rodewald next year expects to add "one or two PowerBuilder programmers, two Internet application programmers, an Oracle programmer and at least one project manager," she says.

Rodewald says she expects to have trouble finding "PowerBuilder programmers and programmers that understand Java or ActiveX" Internet languages. She isn't alone. When asked what skills they are looking for in people they expect to hire next year, 13% of the IS hiring managers surveyed said Powersoft Corp.'s PowerBuilder programmers, and 10% said Java.

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The great skills chase, page 94

The best tools for the job

55% of IS managers surveyed plan new hires in the next 12 months. Those managers will seek the following skills and pay the following premiums:

Highest salary premium

LANGUAGES	% HIRING FOR SKILL	SALARY PREMIUM PERMANENT STAFF	SALARY PREMIUM CONTRACTORS/ CONSULTANTS
HTML	21%	9%	13%
C++	18%	9%	11%
Cobol	13%	7%	8%
Java	10%	8%	9%
C	10%	7%	8%
Micro Focus Cobol	6%	9%	4%
Smalltalk	2%	7%	7%
Object-oriented Cobol	1%	9%	3%
Objective C	1%	4%	1%
DEVELOPMENT TOOLS			
Microsoft Visual Basic	24%	9%	5%
PowerBuilder	13%	11%	17%
Visual C++	9%	11%	10%
Oracle Developer/2000	5%	13%	14%
Progress	4%	4%	5%
Borland Delphi	3%	8%	4%
Forte	1%	12%	9%
Centura Software	1%	11%	0%
Gupta SQLWindows	1%	10%	9%
Unify Vision	1%	5%	0%
Seer HPS	1%	1%	0%
JYACC JAM	0%	4%	2%
NETWORKING			
LU6.2	41%	7%	4%
APPC*	3%	9%	1%
TCP/IP	0%	9%	10%
WAN-Wise	0%	4%	7%
RDBMS ADMINISTRATION			
Oracle	19%	11%	16%
Microsoft SQL Server	12%	10%	9%
Sybase SQL Server	7%	10%	9%
DB2	9%	9%	7%
Informix	3%	7%	10%
Progress	2%	4%	2%
dBase/Xbase	1%	9%	4%
IBM IMS	1%	9%	3%
Gupta SQLBase	1%	8%	9%
Paradox	1%	8%	2%
CA-Ingres	1%	5%	4%
CLIENT/SERVER APPLICATIONS			
Oracle	11%	14%	15%
PeopleSoft	5%	12%	29%
SAP	3%	8%	11%
Dun & Bradstreet	1%	15%	4%
Baan	1%	10%	5%

*IBM's Advanced Program-to-Program Communications

■ = Mainstream skill (10% or more hiring) ■ = Niche skill (less than 10% hiring)

the GREAT SKILLS chase

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ALL THE RIGHT STUFF

Amresco's Randy Johnson made a very smart career move when he decided to focus on database administration

RANDY JOHNSON was ready for a career change earlier this year. After analyzing marketplace demand, he decided to turn his experience with Oracle Corp.'s relational database management system into a job as an Oracle database administrator. "I found that there was quite a bit of demand in Dallas," says Johnson, who worked through a recruiter. He found a new job in just two weeks as the Unix and Oracle database administrator at Amresco, Inc., a diversified real estate financial services firm.

Johnson certainly picked the right field. The 1996 *Computerworld* Skills Survey found that full-time Oracle administrators were paid salary premiums of 11%; contractors were paid 16% premiums. Relational database administrators who specialize in SQL Server from Microsoft Corp. and Sybase, Inc. also did well. Each earned premiums of 10% (full-time) and 9% (contractors).

Johnson's approach is typical of those who possess lucrative information systems skills, such as relational database administrators. They're flexible. They study the market to uncover hiring trends. They learn high-demand skills.

"It is a constant process of monitoring the market. People need to look at their careers once a year," advises Gerald Lump, managing partner at the Source EDP office in Rolling Meadows, Ill.

That's been Johnson's mantra. He decided to switch from programming to database administration after concluding that database administrators would have better future career prospects than programmers.

"I just saw that they're making [developer's] tools so easy to use that I figured the perceived value of programmers would diminish," Johnson says. Almost always enrolled in classes on his own time, Johnson is currently taking courses in database administration. "I think you have to keep current," he says.

Career flexibility also netted Jon Webster a successful career as an independent contractor specializing in PeopleSoft, Inc.'s client/server applications.

Webster learned PeopleSoft on the job three years ago as one of a 12-member development team at Big Six accounting firm Ernst & Young. "They gave me a book," Webster recalls. The firm hired him to help build its internal human resources and financial systems even though Webster had never even heard of PeopleSoft. He did have several years experience with relational database design, Unix and C.

Indeed, there are so few experienced PeopleSoft developers that employers paid premiums of 12% for full-time employees and a whopping 29% for independent contractors in 1996, according to the *Computerworld* survey.

The huge pay differential is what persuaded Webster to leave Ernst & Young after only seven months for a six-month stint as a contractor at Goldman, Sachs & Co., the New York-based investment bank. At Ernst & Young, Webster earned $43,000, compared with $50 per hour at Goldman. He now earns $150 per hour.

"It is a constant process of monitoring the market. People need to look at their career once a year," Source EDP's Gerald Lump says.

Like Webster and Johnson, Lynn Yar-

The great skills chase, page 98

End users will manage and analyze corporate data? Without my help? Is this one of those

MIS jo

Funny how no one thinks a database can be both easy to learn and powerful. But Lotus Approach is just such a database. Powerful. Accessible. And most importantly, easy. So easy in fact that end users can query, report on, and analyze corporate data without tying up the MIS department. (And that's no MIS joke.)

Just imagine: end users creating professional reports. Business analysts building their own charts and crosstabs. Users with no programming experience generating complete, customizable solutions in seconds using Approach's new SmartMaster applications. And you? You're getting your work done instead of theirs. Now there's something to smile about.

With Approach, it doesn't matter where your data is stored. In DB2,® Oracle,® Sybase,® dBASE, or almost anywhere else. Users can each join related data as it is, and where it is – even if it's stored in different database systems. Which means that users never need to copy or convert data into yet another database format just to build reports and analyses.

Plus, Lotus Approach 96 just won PC Magazine's "Editors' Choice" award, prompting one reviewer to say, "If there's an effective database product that surpasses all others in ease of use, it's Lotus Approach." We couldn't have said it better ourselves.

To find out more about Lotus Approach 96, or if you're a DB2 user looking to "Extend the Power of DB2," call 1-800-TRADE UP, ext. C223. Or visit us on the World Wide Web at www.lotus.com.

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intel inside
PENTIUM PRO

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The ProLiant 5000 Affect
Say Its Code Name Was "Hurricane."

COMPAQ

Has It Changed Your Life Yet?

the GREAT SKILLS chase

CONTINUED FROM PAGE 94

brough also has been a believer in a flexible attitude and current skill set for 40 years. After earning a master's degree in mathematics in 1955, Yarbrough got a job as a computer programmer at McDonnell Douglas Aircraft Co., a unit of McDonnell Douglas Corp. in St. Louis. Since then, he has gained experience with dozens of hardware platforms, software packages and programming languages.

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That experience brought a memory from very early in his career. He wrote a long-range planning program for the aerospace industry, which went into production without incident in February. But in October, he began getting "screaming phone calls" from outraged users.

The problem: "I had overlaid a customer-name field with a month field by one digit so the customer field was stomping on the first digit of the month," Yarbrough recalls. That's why the snafu showed up in October — the first two-digit month of the year. "Like most major errors early in your career, that one stuck with me," he says.

With 2000 a little more than three years away, corporations are beginning to wake up to this sleeping giant, which could cause problems for any program or calculation based on dates. According to the *Computerworld* survey, full-time conversion employees earned average premiums of 11%, and contractors earned 15%. Year 2000 conversion efforts are expected to keep programmers, project managers and contractors very busy.

Indeed, Yarbrough doesn't have the lifestyle of the typical retiree. "I've been busy," he quips. "I don't have time to sit around reading books."

Wilson is a freelance writer in Glen Ellyn, Ill.

CONTINUED FROM PAGE 93

The best tools for the job

OPERATING SYSTEMS	% HIRING FOR SKILL	SALARY PREMIUM PERMANENT STAFF	SALARY PREMIUM CONTRACTORS/ CONSULTANTS
Windows NT	36%	9%	11%
Windows 95	26%	8%	8%
Windows	15%	10%	7%
Unix	15%	9%	8%
AIX	7%	5%	6%
DOS	6%	9%	3%
MVS	5%	10%	4%
HP-UX	5%	3%	4%
Digital VMS	4%	7%	2%
Solaris	4%	6%	2%
OS/2	2%	7%	8%
Macintosh	2%	4%	1%
OSF	1%	4%	6%
INTERNETWORKING			
Cisco	8%	8%	7%
3Com	5%	7%	11%
IBM	4%	9%	11%
Bay Networks	4%	7%	8%
LAN Switching	4%	6%	8%
Cabletron	3%	7%	5%
LAN ADMINISTRATION			*Internet Transport Protocol
Windows NT Server	23%	9%	13%
Novell NetWare	22%	9%	12%
Ethernet	14%	7%	9%
HTTP*	5%	4%	7%
OS/2 Warp	2%	7%	9%
OS/2 LAN Server	1%	9%	5%
AppleTalk	1%	4%	5%
Banyan Vines	1%	4%	4%
OFFICE E-MAIL/GROUPWARE			
Microsoft Exchange	11%	9%	7%
Lotus Notes	9%	9%	16%
CC:Mail	5%	10%	9%
Novell GroupWise	4%	7%	5%
Beyond Mail	1%	7%	0%
SYSTEM SOFTWARE/SUPPORT			*Online transaction processing
Security	54%	5%	4%
Decision-support	36%	9%	3%
Data warehousing/ Data access	19%	10%	7%
Project management	12%	8%	9%
Year 2000 conversions	0%	11%	15%
Web development	0%	7%	10%
Network management	0%	7%	10%
Systems management	0%	7%	5%
Help desk	0%	8%	4%
Utilization/Performance	0%	6%	4%
OLTP*	0%	3%	3%
Directories	0%	3%	0%

■ = Mainstream skill (10% or more hiring) ■ = Niche skill (less than 10% hiring)

The top 20 hottest skills

(Ranked by those who will be hiring in the next 12 months)

	SKILL	TECHNOLOGY AREA	% HIRING FOR SKILL	MARKET DEMAND	SALARY PREMIUM
1	LU6.2	Networking	41%	Mainstream	7%
2	Windows NT	Operating system	36%	Mainstream	9%
3	Windows 95	Operating system	26%	Mainstream	8%
4	Microsoft Visual Basic	Development tool	24%	Mainstream	8%
5	Windows NT Server	LAN administration	23%	Mainstream	9%
6	Novell NetWare	LAN administration	22%	Mainstream	9%
7	HTML	Language	21%	Mainstream	6%
8	Oracle	RDBMS administration	19%	Mainstream	11%
9	C++	Language	18%	Mainstream	6%
10	Windows	Operating system	15%	Mainstream	10%
11	Unix	Operating system	15%	Mainstream	9%
12	Ethernet	LAN administration	14%	Mainstream	7%
13	PowerBuilder	Development tool	13%	Mainstream	11%
14	Cobol	Language	13%	Mainstream	6%
15	Microsoft SQL Server	RDBMS administration	12%	Mainstream	10%
16	Oracle	Client/server application	11%	Mainstream	9%
17	Microsoft Exchange	E-mail/Groupware	11%	Mainstream	14%
18	Java	Language	10%	Mainstream	8%
19	C	Language	10%	Mainstream	7%
20	Visual C++	Development tool	9%	Niche	11%

the GREAT SKILLS chase

CONTINUED FROM PAGE 94

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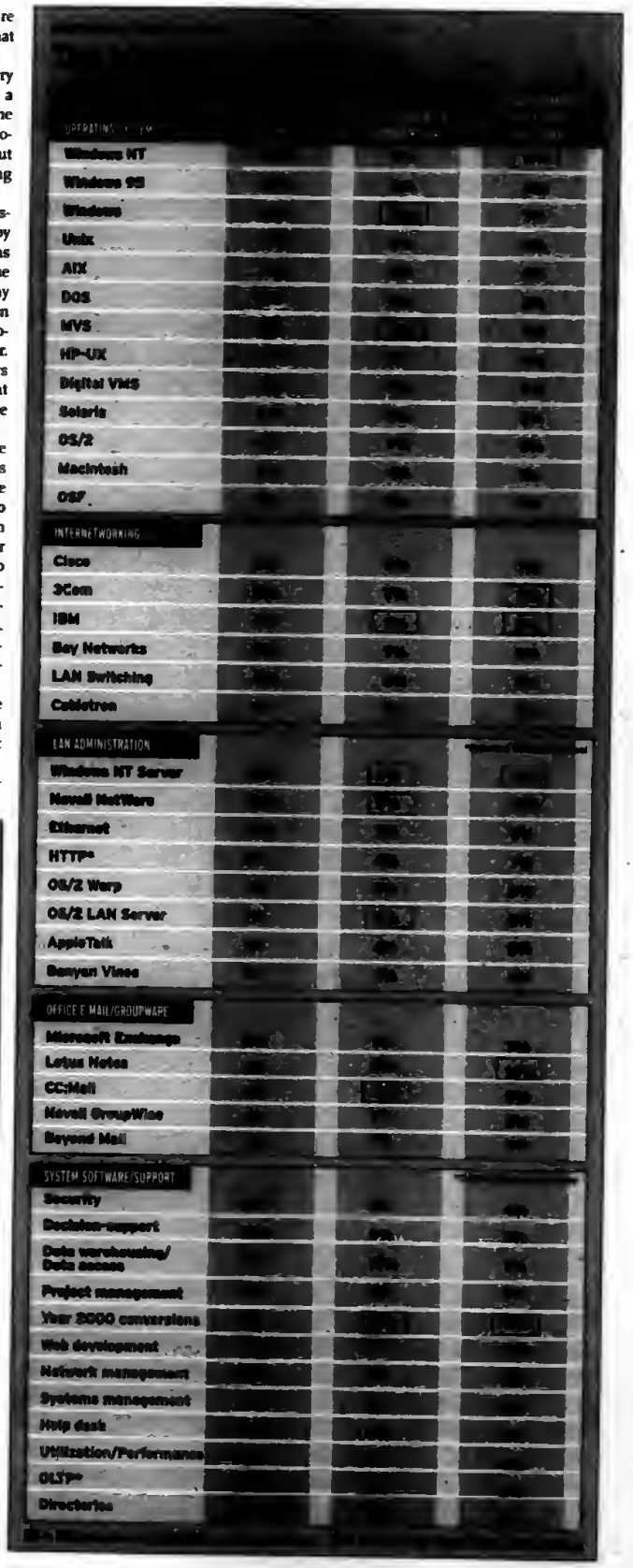

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UNISYS

When information is everything.

Where the girls aren't
Why aren't more girls interested in computer careers? Laura DiDio explores the issue in Ms.MIS. Page 108

Managing

HELLUVA PROJECT

It's over now, but setting up a program for project managers was a tough assignment. Here's how we pulled it off, and the lessons I won't forget. ☛ **By J. R. Wolleat**

WHAT DO YOU MEAN — implement professional project management? In an information technology shop of 3,800 — *by myself.*

What's a *professional* project manager, anyway? Now, two-plus years later, I give you the "pocket guide" version of how I did it — with three to four full-time staffers and a host of interested volunteers. There was good, bad and *ugly.*

Everything sounded innocent enough in April 1994 when my boss called and said something like, "Here's your new assignment, should you choose to accept it: Implement a professional project management program in IT. The Re-engineering Steering Committee (The Big Boys) just signed off on the plan to do this, and I thought you might want to handle it." Well, I was in the midst of a hectic assignment on our billing system rewrite project, and I thought this would be a nice little siesta after leading planning, design and testing for two years.

Wrong. The benefits promised in the plan, such as tremendous people and life-cycle savings for systems development, were dramatic. And we all know how great recommendations sound at a high level, especially when the folks — also known

Helluva project, page 102

J. R. Wolleat [illegible] an especially hect[illegible] and I thought this wou[illegible] little siesta ... wrong

HELLUVA PROJECT

CONTINUED FROM PAGE 101

as outside consultants — doing the recommending *don't* have to do the implementing.

THE FIRST MONTH

When I realized that the team that wrote the plan was disbanded and the consultants were out the door, I panicked. Not only did I not have any people to help me or any continuity from the planning team, but there were also some *serious* expectations set by the original plan.

That same plan also recommended a staff of 17 — yes, 17! — to effect its implementation. Here I was, personally responsible for an initiative that made the 1994 Information Technology Strategic Framework that hung on everyone's wall. That meant I was famous and that I had to report to top IT management against milestones and commitments throughout the year. My pay raise would depend *mightily* on my implementation skills.

All I knew to do was use common sense and some skills I had developed over the years. I sent out electronic mail asking for help from anyone I thought could spell "project management," including lots of folks outside IT. I also grabbed the main IT rep from the re-engineering planning team, and we began scheming. My boss got her loaned to me for six months and got another person half-time for several months.

We dissected the high-level plan from re-engineering, breaking the seemingly impossible objective into manageable chunks, such as the following:

- Establishing the training needed to upgrade the project managers to a level recognized in the industry as professional.
- Establishing and clarifying roles and responsibilities for professional project managers.
- Analyzing and recommending standard tools for the professional project manager.
- Establishing a standard project management methodology and documenting it in a handbook.
- Designing a career development program for project managers.

We then prioritized the chunks, and I made assignments for my staff of two — one would head the training team and one the tools team. I had a program plan.

THE REST OF 1994

I had a kick-off meeting with my sponsors, about a dozen volunteers who were interested in helping me implement, and my staff. We used a facilitator (to ensure we stuck to the published agenda), presented the program plan, had refreshments (this helps), sold the plan, congratulated the volunteers and took off running. That was in late May. By December we had done the following:

- Selected and contracted a vendor for the professional training and held a pilot class.
- Developed a training curriculum (internal and external classes).
- Drafted a methodology.
- Analyzed and recommended standard tools.
- Established "Project Central," a point of contact for IT project management.

By year's end, I finally had secured permanent full-time positions for three and a part-time administrator. Although I still believed I needed more full-time staff, I knew we could make it work with the caliber of those I was getting — if our volunteers just hung with us.

AND THEN THERE WAS 1995

In January, we tried rolling out our products. Somehow, I forgot everyone takes a mind dump for the holidays. It was slow going initially, but by the time my boss took early retirement in June, we had the following things:

- A published training curriculum.
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We now jumped into the career development program, which involved bringing all the previously completed pieces together into a nice package. It took more than six months just to get the multilevel job descriptions approved by human resources.

Another blow came in December when our vice president/CIO left the company.

1996

In January, our administrative vice president left. We knew we had to finish the program implementation fast because IT was reorganizing again. We pulled together one last team, led by one of my folks and again staffed mostly by volunteers, to complete rolling out the career program in IT and introduce the program to the company. That's in progress now, with several hundred project managers across the company participating.

If you do the following, you'll still have problems, but I *betcha* you'll do better than I did.

Wolleat worked in the Information Technology Program Management Office of a major telecommunications company before taking early retirement in October. In January, she will open the Birmingham, Ala., office of Computer Task Group, a consulting firm. Her E-mail address is LaneyRae@aol.com.

The Top 10 things to remember when implementing a change program

10. Get grassroots support. Use your friends and contacts for base support.

9. Don't take program challenges personally. Look for the constructive part in the criticism.

8. Start everyone off on the same page. Have a plan, and share it.

7. Don't roll out anything in January. Holidays do something to people.

6. Research, reuse, leverage and create synergy somehow. Never redo what's already been done. Align with existing groups and organizations, and use what is under your nose, including your own dormant skills.

5. Don't believe HR. Have risk-mitigation strategies to deal with their inflexibility.

4. "Chunk" it. Break big things into manageable deliverables to show some progress quickly.

3. Communicate. Use any medium available to spread the word and keep doing it.

2. Stay in upper management's face. You need this to complement No. 1.

And the No. 1 thing to remember:

1. Get good people, and get enough people. Be adamant.

COMPUTERWORLD

Want to learn more about implementing a program for project managers? J. R. Wolleat will facilitate an online discussion this week on our Web site. www.computerworld.com

HELLUVA PROJECT

CONTINUED FROM PAGE 101

as outside consultants — doing the recommending *don't* have to do the implementing.

THE FIRST MONTH

When I realized that the team that wrote the plan was disbanded and the consultants were out the door, I panicked. Not only did I not have any people to help me or any continuity from the planning team, but there were also some *serious* expectations set by the original plan.

That same plan also recommended a staff of 17 — yes, 17! — to effect its implementation. Here I was, personally responsible for an initiative that made the 1994 Information Technology Strategic Framework that hung on everyone's wall. That meant I was famous and that I had to report to top IT management against milestones and commitments throughout the year. My pay raise would depend *mightily* on my implementation skills.

All I knew to do was use common sense and some skills I had developed over the years. I sent out electronic-mail asking for help from anyone I thought could spell "project management," including lots of folks outside IT. I also grabbed the main IT rep from the re-engineering planning team, and we began scheming. My boss got her loaned to me for six months and got another person half-time for several months.

We dissected the high-level plan from re-engineering, breaking the seemingly impossible objective into manageable chunks, such as the following:

- Establishing the training needed to upgrade the project managers to a level recognized in the industry as professional.
- Establishing and clarifying roles and responsibilities for professional project managers.
- Analyzing and recommending standard tools for the professional project manager.
- Establishing a standard project management methodology and documenting it in a handbook.
- Designing a career development program for project managers.

We then prioritized the chunks, and I made assignments for my staff of two — one would head the training team and one the tools team. I had a program plan.

THE REST OF 1994

I had a kick-off meeting with my sponsors, about a dozen volunteers who were interested in helping me implement, and my staff. We used a facilitator (to ensure we stuck to the published agenda), presented the program plan, had refreshments (this helps), sold the plan, congratulated the volunteers and took off running. That was in late May. By December, we had done the following:

- Selected and contracted a vendor for the professional training and held a pilot class.
- Developed a training curriculum (internal and external classes).
- Drafted a methodology.
- Analyzed and recommended standard tools.
- Established "Project Central," a point of contact for IT project management.

By year's end, I finally had secured permanent full-time positions for three and a part-time administrator. Although I still believed I needed more full-time staff, I knew we could make it work with the caliber of those I was getting — if our volunteers just hung with us.

AND THEN THERE WAS 1995

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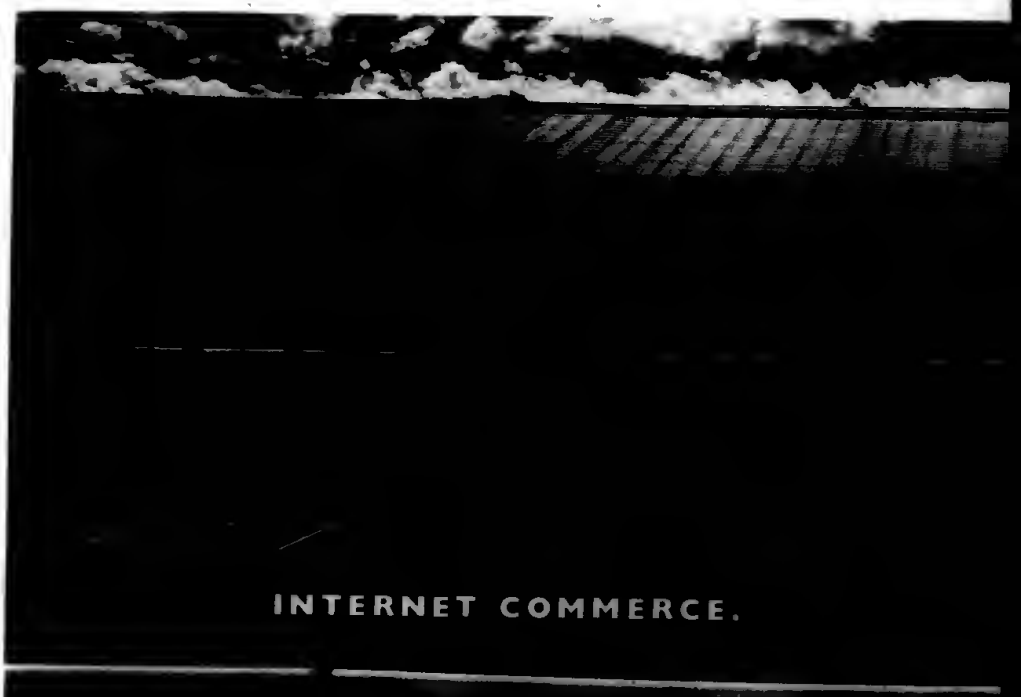

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MS. MIS
WOMEN IN INFORMATION SYSTEMS

IS: WHERE THE GIRLS AREN'T

Despite high pay and plenty of jobs, women eschew computer science and information technology. But there are signs of change for the better at some schools.

It's no secret that women are shattering the glass ceiling, taking big bytes out of the heretofore sacrosanct male bastion of information systems. Women are involved in every aspect of the IS organization as network administrators, managers, programmers, application developers and software quality assurance managers.

With good reason. IS is one of the highest-paying professions for women, netting distaff administrators about 83 cents for every $1 their male counterparts earn, according to the U.S. Bureau of Labor Statistics. For all industries, a woman earns 63 cents for every $1 a man earns.

Businesses are scrambling to diversify their work forces, even using signing bonuses to bring women and minorities aboard.

So high school and college women must be flocking to IS in record numbers, right?

Wrong.

It's just the opposite. Women are mysteriously absenting themselves from computer science classes in high school and college.

The National Center for Educational Statistics at the U.S. Department of Education has been conducting surveys on the subject since 1981. The findings: The number of women who earn bachelor degrees in computer science peaked in 1984 and has been declining since. The latest results indicate that women account for only about 27% of all computer science degrees. And although females accounted for more than one-third of the country's 5,095 National Merit Scholars in 1992 — less than 10% said they planned to major in computer sciences.

IT COMES DOWN TO IMAGE

What are the flesh-and-blood reasons behind these abysmal statistics? Theories abound, but it all seems to come down to this: "Girls, once they hit puberty, are put off by the thought of working with computers for the sake of computing," says Susan Marino, director of the Program for Women at the Institute of Technology at the University of Minnesota in Minneapolis. "The big issue with women is not that they can't get jobs, but that not enough of them are going into the field," she says.

It seems girls and young women are avoiding computer science classes the same way their mothers and grandmothers eschewed woodworking and automotive courses in the '50s and '60s. Or as one 16-year-old at Brookline (Mass.) High School told me: "I don't want the guys to think of me as a nerd."

The girls hang out on chat lines, gabbing with their friends or surfing the 'net to meet guys. Their male counterparts play computer games and sometimes hack in to systems. They are building skills that are more likely to land them plum IS positions.

But the alarm has been sounded, and people are rushing to do something. Marino, for example, last year launched a program designed to bring fifth- and sixth-grade girls on campus and get them comfortable with computing and IS by introducing them to the university's computer science lab.

Jo Sanders is another activist for getting women to join the IS ranks. Dismayed by the widening computer gender gap, Sanders, director of the Computer Equity Expert Project in New York, secured a $900,000 grant three years ago from the National Science Foundation to train 200 teachers nationwide on how to attract more girls to computing and computer-related fields. Those 200 then went out and trained 9,400 colleagues.

The results have been tangible. One Oklahoma school saw female enrollment in its computer science classes leap from 0% to 31%. At a Michigan school, the number of girls signing up for programming classes rose from 0% in 1991 to 31% the following year.

Then there's Hot Springs High School in Hot Springs, Ark. Despite being a poor district, it decided to aggressively acquaint kids with computers and high technology. The district raised $2.5 million in a bond issue, and Principal Bill Stringer used a good chunk of the money to install five computer labs, including a graphic arts design lab and an applied technology lab. Happily, Stringer says, the girls have been just as enthusiastic about the labs as the boys. "Our goal is to meld the classroom curriculum and the technology labs to the point where they're not distinct entities," Stringer says.

COMPUTERWORLD

This week on @Computerworld, senior editor Laura DiDio will lead a discussion about the gender gap among high school and college students who aspire to work in information technology. (www.computerworld.com)

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PETER G. W. KEEN

PUTTING THE PAYOFF BEFORE PROCESS

There's a big difference between getting a business process right and choosing the right one to get right.

In my experience, most re-engineering projects that involve IS get the wrong ones right.

They pick out the types of processes that best suit the information systems tool kit, most obviously ones packed with administrative steps, paper and delays. The IS view of processes is basically this: Find a workflow that needs fixing. Apply the tools. Make dramatic improvements.

But process improvement isn't necessarily process payoff. We are seeing a widening process paradox: Money spent on generating process benefits doesn't lead to improved business performance. The new, improved processes don't contribute to the business drivers.

A 1994 *Harvard Business Review* article summarizes the effects of the paradox:

"A computer company re-engineers its finance department, reducing process costs by 34% — yet operating income stalls. An insurer cuts claims process time by 44% — yet profits drop. Managers proclaim a 20% cost reduction, a 25% quality improvement — yet in the same period, business-unit costs increase and profits decline."

Perhaps the most noteworthy instance of the paradox is Mutual Benefit Life, one of the two main exemplars in the *Harvard Business Review* article by Michael Hammer that effectively launched the re-engineering movement. The company cut the time to issue an insurance policy from about three weeks to a day. You won't find any mention of Mutual Benefit in Hammer's even more influential book, *Reengineering the Corporation*. The company went close to belly up and had to be taken over by state regulators.

If Mutual Benefit is the answer, what the heck was the question? The mainstream IS conception of process as workflow just about guarantees the process paradox.

Resolving the paradox rests on viewing processes as economic capital. Payoff, as opposed to process improvement, comes from choosing the right process to get right, by focusing on the following two dimensions of value:

Worth: Processes as invisible capital assets and liabilities. Though they may not appear on the balance sheet, processes tie up the firm's capital. Processes help or hinder a company's ability to generate economic value added and increase shareholder value. (Economic value added is the after-tax cash flow the firm generates, minus the cost of the capital deployed.)

Salience: Their importance to the firm's strategic intent. There are some processes that differentiate the firm and constitute the firm's distinctive identity. There are others that determine how well it matches or exceeds competitors in operations; here, a 5% edge can translate to sustained success or to continuing erosion.

Then there are the many processes that are part of the background to these more salient ones: all the administrative processes that have lengthy workflows, documents, delays and handoffs. Too often, these are the processes that attract the attention of IS because they are so amenable to groupware, image processing and other information technology tools. But these workflows tell you nothing about the value of the process as a capital asset or liability, or about their strategic salience.

The single and longest-standing weakness of the IS field, our lack of a convincing financial framework, hinders our ability to choose the right projects. We've had competitive advantage frameworks, customer service frameworks and re-engineering frameworks.

We haven't had an economic framework that business managers buy in to. None of the fancy return on investment schemes, "methodologies," surveys and statistical bravura that litter the IS landscape has any credibility with business executives. Almost all the CEOs I work with are deeply skeptical about claims of IS payoff.

Paul Strassmann, my fellow *Computerworld* columnist, has long highlighted this lack of an economic perspective in IS. He views IT as business capital. My perspective on processes adopts exactly that view.

Strassmann has shown that there's no correlation between IT investments and return on investment and related accounting measures; companies aren't prioritizing their IT capital deployment to maximize true economic performance.

The process paradox shows they are misprioritizing their process investment in the same way.

IT is just another way of spending money. It's capital, not expense. The process paradox comes from firms not allocating capital wisely. The basic job of IS is to make sure that IT investments provide a higher payoff than if money were spent on some other project. How do your IS re-engineering and workflow programs rate on this measure?

Depending on the month, Keen is an author, consultant, public speaker and professor based in Great Falls, Va.

f.y.i.

Grappling with gripes

What do you do when your meeting with users turns ugly?

Our forum on the topic on Computerworld's World Wide Web site (www.computerworld.com), which ran the week of a Managing section article titled, "From Gripe-In to Love-In," [Sept. 30, page 81], drew a considerable response. Here are some postings we received (names have been omitted.):

"What we all seem to overlook is that griping gets results that praise and warm fuzzies don't. If you doubt that, survey who gets the best consumer product service: [Is it] the curmudgeon who will complain loudly until the vendor fixes it? Or the accommodating, courteous, understanding soft touch who accepts unwarranted delays and shoddy workmanship with little fuss? The meek may inherit the earth, but the cranky and insistent get their desired outcomes."

"I have been hit with gripes from users, mostly about how slow IS takes to fix their problems. Getting organized is the best way to deal with it. Make a database of problems and document everything so that you can have a shorter turnaround time."

"The number one thing to do ... is listen to what the user is griping about. Is it something that can be fixed? Ask them what they think should be done to fix it, and then walk them though it. If you show them that their way doesn't work and only wastes time, they won't gripe at you again about it. If their way actually works, then adopt it as a solution for future reference."

"Someone has to teach users some manners. They have to learn how to be polite, too. Constructive griping, as I call it, is sort of a way to express a problem without putting the IS person down. Like, 'I'm having a problem printing out charts, could you please look into it?' instead of 'This stupid machine won't print charts, what kind of idiot are you to install software so complex and buggy that it won't do what I want it to?' "

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Buyer's Guide

USER VIEW

A Computerworld survey reveals that PC vendors are getting their acts together in keeping their users happy. Products are more reliable, better supported and faster . . . and they will just keep getting better.

ON A PC HIGH

By Kevin Burden

Admit it: You're happier with your PCs now than you were a year ago, and you're getting along better with your vendor.

Don't deny it; we have proof. *Computerworld* has conducted PC user satisfaction surveys for several years. The industry as a whole this year posted dramatic increases in overall customer satisfaction.

HP and Dell tied for best in overall satisfaction with vendors and systems

The order of the five biggest vendors' overall satisfaction rankings shifted. But because each improved in critical categories such as reliability and technical support, users say, first place hardly matters. "What's

On a PC high, page 114

ERIC YARE

ON A PC HIGH

CONTINUED FROM PAGE 113

important is we can buy from nearly any vendor and be nearly guaranteed a good experience," says Marion Scholten, senior help desk analyst at University Hospital in Augusta, Ga.

This year's telephone survey drew responses from 250 corporate PC buyers, who graded their satisfaction in areas that ranged from performance and reliability to ease of maintenance and vendor support. So even though the survey says it's tough to choose a bad vendor, each can be distinguished by its strengths. Look to Hewlett-Packard Co. for reliability and maintainability, Dell Computer Corp. for value, Compaq Computer Corp. for performance, Apple Computer, Inc. for good support and IBM PC Co. for technology leadership (see chart, page 116).

Why the spike in happiness? Are vendors truly getting their acts together, or is everybody just sick of complaining? Probably more the former than the latter, says Joe Ferlazzo, a senior analyst at Technology Business Research, Inc. in Hampton, N.H.

For instance, reliability scores improved primarily because more vendors are using industry-standard components, Ferlazzo says. That means there's a much better chance that an order of 100 of the same PCs will actually result in 100 of the same PCs being delivered.

"There were always a few oddball systems in our batch orders that wouldn't configure the same as the others. It was especially true with Compaq systems," says Steve Griffin, systems engineer at Occidental Chemical Corp. in Corpus Christi, Texas. "They weren't bad PCs. There just was something different about them that we couldn't — and the vendor wouldn't — put their finger on."

Now most vendors, including Compaq, are opting to add value through software instead of through proprietary hardware, Ferlazzo says, which makes configuring systems much easier for large corporate customers that buy in bulk. "Once we configure one system, we now can go right down the line configuring them all the same way. It saves time," Griffin says.

Technical support is also improving, users say. Some vendors were so badly beaten up for their service in past surveys that they couldn't do much worse if they eliminated customer contact completely. The irony is that with the advent of the World Wide Web, vendors are taking a step in that direction. Users say they are contacting vendors much less often by telephone, yet support has never been better because vendors' Web sites hold so much of the information they need.

"Information over the Web is immediate," says Lee Schrock, data center engineer at the U.S. National Renewable Energy Laboratory in Golden, Colo. He says nearly all his technical questions are now answered through Dell's Web site. From software updates and reference materials to troubleshooting and Q&A forums, "the site has everything that makes me want to go there first," Schrock says.

But the text search controls on most vendor sites still need work, Schrock says. Although users can bypass the 20-minute wait on hold, they might instead have to manually search through 50 pages of drivers to find the one they need.

The hidden upside to the Web-based support movement is the relief it brings to perpetually clogged support lines. Several users say getting through to technical support on the phone is easier now that Web pages are handling some of the load. "[Apple] still puts me on hold, but not nearly as long anymore, and I'm getting through on the first try more often," says Dan Knight, information systems manager at Baker Book House in Ada, Mich.

Apple, not part of last year's survey, this year managed to score an A for its support from 28% of its users. Compaq and Dell tied for second with 26%.

Users are also happier with the performance of today's high-end systems than they were a year ago. Although performance didn't rank among the highest scores for all vendors, users said in interviews that it's only because they're accustomed to big power leaps each year. But users this year say the 200-MHz high-end systems are much better for Web use than last year's 133-MHz systems. Forty-eight percent of Compaq users gave the company an A for performance, edging out HP with 46%.

WHICH TO CHOOSE/AVOID

These results don't necessarily reveal which is the better vendor. But they do show which vendor is best at pleasing its customers, which "might be everything now that vendors are all using the same components," says Mark Stoub, senior systems analyst and longtime HP user at MidAmerican Energy Co. in Davenport, Iowa.

For several reasons, HP and Dell are in a class by themselves, posting 18% and 14% increases respectively in the number of A's each received for overall customer satisfaction this year.

In the cellar is IBM, the only vendor whose overall satisfaction score decreased from last year. IBM isn't necessarily doing anything wrong, Ferlazzo says. But it did change its distribution practices, which users say takes time to get used to.

At one time, IBM sold through both direct and indirect channels, but it has moved completely to the indirect route since the beginning of the year. Although indirect sales have been standard practice for many other PC vendors, including HP and Compaq, some IBM customers accustomed to personal contact now feel disconnected from the hand-holding.

"We used to deal with a rep right in Boise. Now we deal with an 800 number. They're like everyone else now," says Don Beahm, computer technician for the Meridian Joint School District in Meridian, Idaho.

The confusion over whom to talk with, how to get in touch and where to buy is a top reason overall satisfaction dropped even as IBM's technical scores such as reliability and performance climbed, users say. "When we finally do find the right person, his universe is now so big he can't deal with our problems one on one," Beahm says.

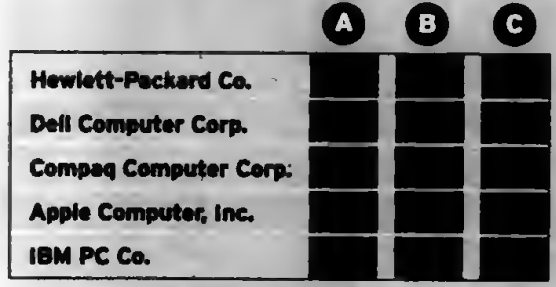
Possibly adding to the confusion within IBM is its move to push part of its manufacturing costs into the channel, Ferlazzo says. IBM's new distribution strategy includes partnering with the channel for final assembly. "This is all new to IBM, so it's possible there's confusion within itself," he says.

Availability is another problem that plagued IBM in the polls. Shortages have come to be expected with IBM's notebook lines, and they're becoming common in its desktop business. "We're waiting up to four months for orders. We're starting [to go] to Compaq and Gateway, which have been a little better," Scholten says.

Burden is Computerworld's senior researcher.

OVERALL SATISFACTION

(Percentage of users, based on 50 users per vendor. Data pertains to the survey base and can't be projected to the entire installed base.)



A = Very Good, B = Good, C = Average
An insignificant number of users gave grades of D or E

PEERLESS

When second-best isn't good enough: The vendor you're likely to have the best experience with in each category.

	A
Reliability	HP
Core CPU performance	Compaq
Keeping promises	HP
Ease of maintenance	HP
Value	Dell
Technical support	Apple
Delivery when needed	HP
Price	Dell

(Vendors that scored the most A's – signifying very good – in each category. Percentage of users, based on 50 users per vendor.)

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COMPANY HIGHLIGHTS

HEWLETT-PACKARD CO.

Palo Alto, Calif. (800) 752-0900
www.hp.com

Look to HP for highly reliable, easily maintainable systems that are often available when needed. HP garnered the most A's in each of those three categories, while also scoring the highest of the survey for overall customer satisfaction. Even with all those credits, many users let HP's corporate stability make the final decision. "I feel safe with HP. It's been around a lot longer than most vendors in this field," says Rick Donlon, accounting supervisor at Sylvania in Danvers, Mass.

DELL COMPUTER CORP.

Austin, Texas (800) 613-3355
www.dell.com

Dell scored nearly as well as HP in many technical categories, including reliability and performance, but its true strength and draw remain its value. "Every time we look at someone else, we find out we're going to pay more for less," says Troy Hyatt, systems support technician at MidAmerican Holding in Kansas City, Mo.

The new models feature a button-released recyclable chassis, a lever-accessed card cage, a hinged power supply and single-screw access to the motherboard.

COMPAQ COMPUTER CORP.

Houston, Texas (800) 345-1518
www.compaq.com

Last year's top finisher is this year's distant third. Although improving its customer satisfaction ratings over last year, Compaq couldn't keep up with the increases HP and Dell posted. Still, Compaq scored more A's for performance than the others and improved its reliability ratings over last year.

However, Compaq is often chosen just because of its reputation for building commercial-grade machines, according to users. That reputation doesn't come cheaply, and it's why Compaq scored the fewest A's for value.

APPLE COMPUTER, INC.

Cupertino, Calif. (800) 538-9696
www.apple.com

Macintosh users have always been very loyal to their brand. But the grades indicate frustration within the clan.

The most A's Apple received came in ease of maintenance (40%), which is low when compared with the top categories of the other vendors. It also received the fewest A's for reliability. Users continue to complain about unexplained crashes, which they hope will be fixed once Apple fully releases its overdue System 8.

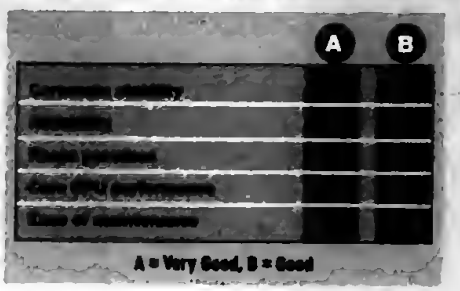
IBM PC CO.

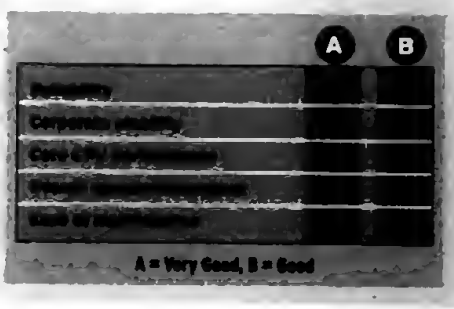
San Jose, Calif. (800) 426-3333
www.pc.ibm.com

The survey shows IBM has more weaknesses than strengths, and its strengths aren't standouts or unique. Its own best score was for reliability, yet it scored lower in that category than the other vendors, except for Apple.

IBM's product availability was the worst of the survey, and its support quality was rated the most average. But its new distribution strategy received mixed reviews, scoring the most A's but also the most C's ("average").

Top five 'A' producing categories for each vendor





BUYER'S ADVISORY

Snippets

A compendium of recent PC reviews from a variety of industry sources

HP Vectra VA
Hewlett-Packard Co.
Palo Alto, Calif.
www.hp.com

"Hewlett-Packard Co.'s new Vectra VA and XA model PCs were designed to appeal to corporate customers by promising reduced cost of ownership and increased performance. HP is breaking the model used with its other product lines by offering a powerful, Spartan box and letting users configure it for their needs."

— Computerworld, *Aug. 5, 1996*

Quantex QP6/200 SM-3
Quantex Microsystems, Inc.
Somerset, N.J.
www.qtx.com

"Although not the fastest performer in the group, the Quantex QP6/200 Pro-1 still merits attention. . . . It's hard to beat the $2,749 price on this decently configured 200-MHz Pentium Pro minitower. . . . The sound setup in particular is excellent and works well for multimedia applications, for playing audio CDs and for presentations and games."

— C/Net, *October 1996*

Celebris GL 6200
Digital Equipment Corp.
Maynard Mass.
www.dec.com

"Digital Equipment Corp.'s Celebris GL 6200 stacks up well against its business-class Pentium Pro competition. . . . The Celebris is the first Pentium Pro system we've seen with USB [Universal Serial Bus] ports, which should provide some investment protection when USB devices become available next year."

— PC Week, *Sept. 30, 1996*

Dell Dimension XPS Pro-200N
Dell Computer Corp.
Austin, Texas
www.dell.com

"This system comes with a 200-MHz Pentium Pro, Intel's 440FX chip set, a flash-upgradable AMI BIOS, 32M bytes of EDO [Extended Data Out] RAM (expandable to 128M bytes), a Sony CDU-311 [eight-speed] CD-ROM drive, a 3.2G-byte IBM EIDE hard drive, Number Nine's Imagine Series 2 graphics card with 4M bytes [Video] RAM, a Sound Blaster 16 PnP sound card, Microsoft Office Professional with Bookshelf and Windows NT Workstation 4.0. Throw in a Microsoft mouse and Windows 95 keyboard, and you've got the most powerful $3,000 system ever offered."

— Windows Magazine, *November 1996*

Buyer's advisory, page 124

'97

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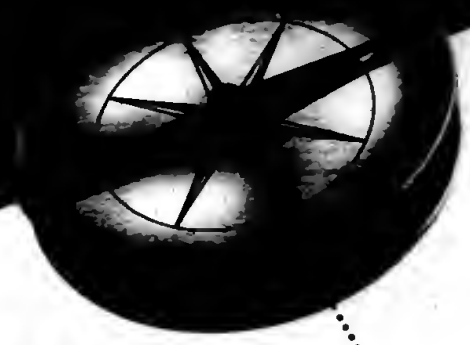

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- Internet/Intranet Issues
- Policy and Deregulation
- Federal Forums
- Technology Primers
- You-Asked-For-It!

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How will you use it?

BUYER'S ADVISORY

Then & Now

What a difference a year makes. A year ago, we asked industry analysts to describe their dream PC, based on currently available technology.

Compare that with what's readily available today, not just at the high end, but also off the shelf at Sears. Even today's consumer special — we looked at a Packard Bell Platinum Pro 755 system — overwhelms last year's dream PC aimed at high-end graphics work. We offer this comparison to give you an idea of what your end users are likely to expect from you. It also shows how quickly technology is emerging and being driven to lower price points.

1995: DREAM MACHINE

PRICE: About $5,000 ($1,000 less with a 17-in. monitor instead of the 21-in. specified)

CPU: 133-MHz Intel Pentium

MEMORY: 32M bytes (some analysts recommended 16M bytes), plus 256K bytes of pipeline burst Level 2 cache.

STORAGE: 1.2G-byte hard drive, 1.44M-byte diskette drive and backup tape drive

MONITOR: 21-in.

MODEM: 28.8K bit/sec. fax modem

CD-ROM: Six-speed drive

MULTIMEDIA: 64-bit graphics accelerator, MPEG video support, speakers and sound card

1996: OFF THE SHELF

PRICE: About $2,600 (plus monitor)

CPU: 200-MHz Pentium (roughly a 28% improvement over the 1995 Dream Machine)

MEMORY: 32M bytes standard (upgradable to 128M bytes), with 256K bytes Level 2 cache

STORAGE: 2.5G-byte hard drive, 1.44M-byte diskette drive and 100M-byte Iomega Zip diskette drive

MONITOR: Extra (up to 1,280- by 1,024-pixel resolution)

MODEM: 33.6 bit/sec. fax modem

CD-ROM: Eight-speed drive

MULTIMEDIA: High-definition 3D stereo sound and speakers, 64-bit 3D graphics/video accelerator, 2M bytes video memory, MPEG 1, full motion video playback, microphone, cable TV ready, video capture and external media selection panel

Sneak peek

THE END-USER PUSH FOR BIGGER, better, faster next year will continue to drive the high-end PC market beyond 200 MHz, according to Joe Ferlazzo, senior analyst at Technology Business Research. "We keep hearing things like 'the buyer's ego.' These are people who want to buy the biggest and the best," he says, adding that the average user probably doesn't need all that 200-MHz-plus capability — yet.

Continued price reductions during the next year will also push 166- and 200-MHz systems into the corporate mainstream, making the 120- and 133-MHz machines the low end of the market.

Here's a quick rundown on what else you can expect in the high-end PC market during the next year, based on conversations with two analysts:

Kevin Heuse, *research analyst*
International Data Corp.
Mountain View, Calif.

▶ The 100 and 120 are rapidly being priced into obsolescence. Price alone will make the 133 the processor of choice for the low end.

▶ We're seeing the 166 already becoming mainstream. Certainly next year we're going to see a lot of movement in the 166 as the standard PC, both corporate and consumer.

▶ In terms of the high end, of course, we're going to see MMX [multimedia extensions] next year. That will give a real boost in the consumer market. We'll see it in the Pentium as well as the Pentium Pro next year. As far we can tell, Intel will be pushing that as a high-end product. It's going to be centered around the 200-MHz speed and perhaps down a little bit, but not too much.

▶ MMX enters at the 200-MHz range. In terms of the pricing and product position, that's where Intel has chosen to center it. It's not required at that level. We think that where their product road map is headed, they don't want to confuse the markets by bringing it down across the board. That way people can still keep the prices down on the volume 133s and 166s without having to confuse their product mix and positioning by having an MMX and a non-MMX version at those speeds.

▶ Regarding dual processors, at the high end, there's certainly more overlap between personal workstations and PCs. With Windows NT 4.0 coming out — which is really giving a big boost in Pentium Pros speeding up — there's been a lot of activity recently by Compaq, HP and IBM to enter that market. They're just capitalizing on what they're doing in the PC markets. They add a few modifications to the graphics and memory subsystems, and they've got a personal workstation product. The margins there are better, so they're jumping in with both feet.

▶ It'll be interesting to see how the graphics subsystems of MMX and the graphics accelerator cards learn to live together. Everybody's saying, 'Hey, this is going to be good for our business.' But it's going to be interesting to see how they end up coexisting from both the technical and marketing standpoint.

▶ Watch removable media and other bus systems. With Digital Video Disk (DVD) entering the picture, you've also got things like the LS-120 vs. the Zip drive. These markets are slowly playing out, but it's going to become interesting to see where the different companies throw their lot and how they hedge their bets. Everybody right now is leaning toward Iomega. But it's going to be interesting to see, when DVD comes out, if that impacts it at all.

▶ At the low end, people are going to be watching the networked computing market. Right now, there's a lot of noise about it, but we're just starting to see products. So it's tough to judge if the companies are just all talk, or if they're actually going to be switching over to these environments.

Joe Ferlezzo, *senior analyst*
Technology Business Research
Hempton, N.H.

▶ We expect the 200-MHz Pentium to be the main corporate processor by the end of next year. Intel has pushed prices down enough so that that's going to be possible. You're still talking around the $2,000 to $2,500 range for these systems. That's in the sweet spot for corporate mass purchase.

▶ The 133 will become the low end. The 166 will just be the midpoint. The advantage to go with the lower-speed machines would be strictly price.

▶ In terms of dual processing, the corporate desktop will probably get the more graphically oriented people.

▶ Intel will embed more functionality onto the chip. For example, next year, all Intel chips will be MMX-enabled. This is basically their native signal processing; renamed. You'll have full-motion video and audio capability embedded on the chip. All the Pentium Pro chips will be MMX-enabled by the end of next year.

▶ One trend we believe is going on now is that corporate buyers are holding off to see what their options are going to be because the price space of Pentium Pro is not yet settled. If you're looking to run Windows NT, then you might want to wait to purchase until Pentium Pro prices come down more into the Pentium range, which will happen around the end of first-quarter 1997. — *Cathleen Gagne*

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http://www.wwopen.com

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inside

The most predictable thing about business is that it's unpredictable. Your needs are likely to be different from one day to the next (or for that matter, from one department to another). You either need a range of servers to accommodate all your different needs. Or one affordable server with a very wide range.

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COMPAQ

Has It Changed Your Life Yet?

BUYER'S ADVISORY

CONTINUED FROM PAGE 116

Bravo MS-T 6200
AST Research, Inc.
Irvine, Calif.
www.ast.com

"NT users demand high performance — and AST's Bravo MS-T 6200 delivers it, combining Intel's latest 200-MHz Pentium Pro with 32M bytes of EDO memory, built-in 16-bit sound, a 2.5G-byte EIDE hard disk, an [eight-speed] CD-ROM drive and Matrox's outstanding MGA Millennium video card, all for just $2,855."
— Windows Magazine, *November 1996*

InfoGold P6200
Americas MultiSystems, Inc.
Milpitas, Calif.
www.infogold.com

"American MultiSystems could have named its InfoGold P6200 the Info Go-getter. With Intel's 200-MHz Pentium Pro processor at its heart, complemented by 256K bytes of internal cache and Windows NT as its operating system, the InfoGold can take almost anything you can throw at it — it'll rip through even the most compute-intensive processes in record time. . . . The InfoGold also performed well on the video text, averaging an impressive 49.6 pixels per second."
— Windows Magazine, *September 1996*

"The Quantex QP5/200 SM-3, the Xi Computer P200 MTower SP/DP, the Hewlett-Packard Vectra VL 5/200 Series 4, and the ProGen Atlas P-200 all use the highly touted Matrox MGA Millennium video card, but they still came up short in our video performance benchmark tests. Alternatively, the Cyrix-base Poly P200CX and the Gateway 2000 P5-200 XL turned in stellar graphics numbers using the STB Lightspeed 128 card with just 2M bytes of vanilla [dynamic] RAM."
— PC/Computing, *November 1996*

PC World's Top 10 Power Desktops

1 Dell Dimension XPS P200S*
PRO: Improved case design, fast graphics card
CON: Slower than expected, no speakers

Dell Dimension XPS P200S

2 Micron P200 Millennia*
PRO: Priced near the budget level, big hard drive, eight-speed CD-ROM drive, 3D graphics card
CON: No modem

3 Dell OptiPlex GXpro 200*
PRO: Fast, great design, integrated networking
CON: Expensive, slow CD-ROM

4 Dell OptiPlex GXMT 5200*
PRO: Fast, built-in networking, hot graphics card
CON: Expensive

5 Dell Dimension XPS Pro200N*
PRO: Improved design, big hard drive, powerful and capable graphics card
CON: Sluggish for a Pentium Pro 200

6 Compaq Deskpro 5200/1080*
PRO: Great performance, good support
CON: Small hard drive and monitor

7 Micron P166 Millennia Plus

8 Gateway 2000 P5-200*
PRO: Fast, nice design, great documentation, rich configuration
CON: Reliability only fair

9 HP Vectra VL4 5/200MT

10 Cyrix 6x86 P200+*
PRO: Terrifically fast hard-drive controller
CON: Very expensive

*Best Buys, PC World, November 1996 issue

CORRECTION

The following chart was missing the first two lines when it went to press for the Nov. 4 issue, including the attribution to Aberdeen Group.

Network operating system strengths and weaknesses

A look at the competing network operating systems by Robert Schulmeyer, an analyst at Aberdeen Group, Inc. in Boston.

Overall findings:
- Enterprise information technology requirements dictate the best network operating system for your organization.
- IBM OS/2 Warp Server has the technical edge, but your decision may be marketing-driven.
- Biff Server is a good operating system but a weaker network operating system for the enterprise. It requires Microsoft's BackOffice and Enterprise Management Server to function well.
- NetWare still dominates the market and serves many well, but it is losing solid share in IT.

The following products are listed by market share:

Novell, Inc.
NetWare
Orem, Utah
(800) 453-1267
www.novell.com

STRENGTHS
- Excellent print-and-file server
- Enterprisewide directory services
- Strong utilities from hundreds of companies

WEAKNESS
- Lags as an application server

GRADES (1 = Poor; 5 = Excellent)

Print-and-file services	5
Application and database services	3
Directory services	5
Reliability, availability and security	4
Performance	4
Remote services	3
Systems management	4

DEPLOYMENT
- Where print-and-file services are important
- Where enterprisewide directory is needed

IBM's Personal Software Products Division
OS/2 Warp Server
Austin, Texas
www.austin.ibm.com
(800) 426-3333

STRENGTHS
- Excellent print-and-file server
- Excellent application server
- Standards-based directory and security services
- Strong management utilities

WEAKNESSES
- Lacks platform support
- Lags on independent software vendor support

GRADES (1 = Poor; 5 = Excellent)

Print-and-file services	5
Application and database services	4
Directory services	4
Reliability, availability and security	4
Performance	5
Remote services	5
Systems management	5

DEPLOYMENT
- Where enterprisewide links are needed (especially when managing remote sites is important)
- When 7-by-24 uptime is critical
- In large IBM installations

Microsoft Corp.
Windows NT
Redmond, Wash.
(800) 426-9400
www.microsoft.com

STRENGTHS
- Good multiple-platform support (Intel, MIPS, PowerPC and Alpha hardware)
- Excellent application server
- Strong research and development support

WEAKNESSES
- Lacks enterprise directory services
- Poor systems management support

GRADES (1 = Poor; 5 = Excellent)

Print-and-file services	3
Application and database services	4
Directory services	2
Reliability, availability and security	3
Performance	4
Remote services	4
Systems management	3

DEPLOYMENT
- In departments and small divisions but not enterprisewide

Digital Equipment Corp.
Pathworks
Maynard, Mass.
(800) 344-4825
www.dec.com

STRENGTHS
- Excellent multiple-platform support (OpenVMS, Digital Unix, NetWare, Windows NT, LAN Manager, VAX, Intel and Alpha)
- Excellent systems management support (ManageWorks, CapaCity and others)
- Good Internet and intranet support

WEAKNESSES
- Lacks enterprise directory services (Distributed Computing Environment directory expected soon)
- Too many pieces to track

GRADES (1 = Poor; 5 = Excellent)

Print-and-file services	4
Application and database services	4
Directory services	3
Reliability, availability and security	4
Performance	3
Remote services	4
Systems management	5

DEPLOYMENT
- In large Digital installations
- When LANs must be linked with different network operating systems
- When many servers, clients and other network resources must be managed

Banyan Systems, Inc.
Vines and ENS
Westboro, Mass.
(800) 222-6926
www.beyan.com

STRENGTHS
- StreetTalk Directory: Hierarchical naming of people and resources for enterprisewide directory services
- Multiple platforms supported via ENS: NetWare, Unix, (AIX, SCO and Solaris) and NT versions that allow those LANs to be included in the directory

WEAKNESSES
- Limited hardware device support
- Poor technical support
- Not enough money for R&D

GRADES (1 = Poor; 5 = Excellent)

Print-and-file services	4
Application and database services	3
Directory services	4
Reliability, availability and security	3
Performance	3
Remote services	3
Systems management	4

DEPLOYMENT
- Only where now installed

Coming in the November 25 issue of Computerworld...

Your corporate intranet – how are you going to manage it? Technology shifts always produce info-gluts: tons and tons of reports, product announcements, articles. What's it all mean?

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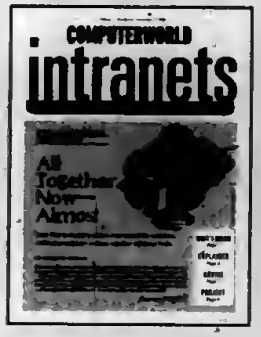

month in *Computerworld* we bring you a "mini-magazine" of highly focused pages that examine the critical intranet management issues you need to know.

www.computerworld.com/intranets

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For expanded practical advice and information that includes checklists, project plans, RealAudio interviews with other high-level managers and links to the best Internet resources. Plus interactive forums and polls to help you find the best ideas and techniques while building your intranet.

IN OUR NOVEMBER 25 ISSUE:

Collaborative Intranets

- **Analysis:** All together now—almost. Until Web groupware makes interoperability seamless, stitching proprietary systems together will have to do.
- **Projects:** Banc One Financial Card Services Corp., a processor of check and credit card transactions, has brought intercompany communication and workflow online for 25 large customers. Its setup combines Lotus Notes and Domino server with an intranet.
- **Explainer:** Is it collaborative or is it groupware?
- **Advice:** What's the best way to set up a groupware intranet? Ask authors David Coleman, managing director of Collaborative Strategies, and Mellanie Hills, president of Knowledgies, online through @Computerworld (www.computerworld.com).

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THE NEXT

CONTINUED FROM PAGE 3

also puts the salesperson in a more consultative role because the Internet-educated buyer needs advice more than just product information, he says.

Moreover, the Internet becomes self-directive because customers are better able to make their own decisions. "They're qualifying themselves as to what's the best car for them," Chase says.

In fact, the Internet may move marketing from a "push" to a "pull" strategy. In the former, manufacturers, through their sales force and other promotions, push products via distributors and retailers, who in turn promote the products to the consumer. In the latter, manufacturers promote directly to the consumer.

Ford Motor Co. and Whirlpool Corp., for instance, have long promoted products to the consumer. But their Web sites are an added direct-to-consumer channel and are likely to gain in importance. That will reduce, but not eliminate, the importance of the retail sales force. Moreover, it will give more control of the process to the consumer.

And increased customer control is another marketing trend likely to gain momentum during the remainder of this decade.

With that aim, Andersen Consulting this year created BargainFinder, an intelligent agent that companson-shops for the best price among suppliers of music CDs on the Internet. Users tell the agent which CD they want, and the agent reports back on the prices offered by eight sites.

Glover Ferguson, director of technology research at Anderson Consulting in Northbrook, Ill., sees this easy comparison shopping as likely to put price pressure on suppliers. Another factor that will create price pressure is the potential for unconventional selling practices. For example, Ferguson thinks the Internet might be the site of auctions for products not previously sold that way. It could also be used by buyers much as want advertisements are today — only the buyer in theory could have a global audience.

The converse of this is that the Internet will lower costs, at least for some. Mark Douglas, president and CEO of CenterView Software, Inc. in San Francisco, says he saves significant amounts of money by distributing software via the Internet.

"Over the Web, we have no physical costs, no collateral costs," Douglas says.

Direct marketing costs may decline as well. "You're able to electronically repackage your offering on a server a lot cheaper than you can print and distribute 100,000 catalogs," says Ray Case, director of marketing at Staples Business Advantage, a division of office supply retailer Staples, Inc.

Ford's multinational Web site sees 12 million hits a month, a customer response that would be very costly using other marketing media.

The medium itself is generating new business for Premenos Corp. in Concord, Calif. Rebecca Young, the company's vice president of marketing, says that a year ago, Premenos' Web site generated 15% of the firm's leads. Now the site generates 35% and has become the single largest source of leads.

Blatberg sees the sales process itself becoming more efficient as information about customers and sales leads are more consistently and effectively handled by the Internet than they are by salespeople, who often fail to follow up adequately.

> The Internet will change the buyer/seller relationship forever

CHANGING EXPECTATIONS

The Internet also promises to speed the sales process. Brett Knobloch, manager of brand loyalty and customer marketing at Whirlpool, notes that getting literature to those who call toll-free telephone numbers often takes weeks, while he E-mails Internet requests for information by 10 a.m. the day after he receives them.

Such service may change customer expectations.

"Consumers will have less tolerance for delays in receiving orders, wrong shipments, mistakes in billing. Everything has to happen at a higher speed," says Mohsen Moazami, national director of the advanced technology group at the Los Angeles office of Kurt Salmon Associates.

Relationships with customers may be transformed by the Internet as sellers capture information about buyers that was difficult, if not impossible, to obtain previously.

"As transactions become electronic, obviously we can store them and mine them. If you know what people are buying and where, that's pretty powerful," says Steven K. Dieringer, a vice president at Bank One Corp. in Columbus, Ohio.

Sales force, page 128

FORCE

Sales force

CONTINUED FROM PAGE 127

But he warns, "We have to be concerned about privacy."

Look for significant changes in the marketing model as a result of the Internet.

Larry Dale, webmaster at Ford, says his site will eventually provide more interactivity. He expects that prospects will eventually input product requirements, such as engine type or passenger capacity, and the software will list which products fit those criteria.

The marketing message will become more customized as vendors learn more about their customers.

"We are moving away from a marketplace which is make-and-sell to a marketplace which is sense-and-respond. Companies will be able to sense what the individual customer wants and quickly respond. You can customize the presentation as it goes along," says Jules Street, vice president of Killen & Associates in Palo Alto, Calif.

Dave Rush, a principal at the Atlanta headquarters of Kurt Salmon Associates, sees an Internet-inspired merging of information-gathering and customized sales messages. He gives an example of an automaker that learns from a prospect's online responses that the prospect has two young children. The company thus tailors its sales message to emphasize the car's safety features. A different prospect with lower income might have the same car pitched with an emphasis on economy.

The Internet will move the trend away from mass marketing to customized marketing.

Mass marketing saw its heyday in the 1950s and 1960s, when the relatively low number of media outlets made it easy to reach a huge portion of the populace. After all, with more than 50% of the television-owning public often watching the same hour-long program, saturation advertising was simple.

But the growth of cable television in the 1980s decreased reliance on the major TV networks. This forced marketers to target ever-narrower audiences. The Internet takes this trend another step. The Web is essentially composed of 30 million people each watching — and, more importantly, talking back to — a customized TV show.

INFORMATION – FOR NOW

"A resource for people to get more information about a product or company — that's probably the largest role the Internet is playing right now," says Clay Ryder, senior industry analyst at Zona Research, Inc. in Redwood City, Calif.

Whirlpool finds the Internet an important medium for distributing information. Knobloch says, "Our whole site is designed to give customers what they want, which is product information, and steer them toward their nearest dealer."

Ford's Dale concurs. "I do not believe we will be selling cars over the Internet," he says. "I think you'll see it's a great medium to provide information to let people know and see what you have available."

In a sense, the Internet is being used like printed marketing material, only on a more sophisticated level. "Today you can publish a 'brochure' [on the Internet] and have it read by people around the world," Ferguson says. "Imagine trying to do that with a real brochure."

The trend is likely to be more of the same, with more businesses placing more product information online.

SPEED BUMPS

The Internet will profoundly affect selling, but the timetable is as dicey as a wireless online connection. Ferguson says that taxes, both in the U.S. and internationally, might slow the impact. A major break-in by a hacker might scare some people temporarily, he adds.

Ryder points out that decades have been spent perfecting packaging designed to create an immediate response — a feature that is largely lost on the Internet. He's not sure how online marketing can compensate. "How do you create the impulse buy?" on the Internet, he asks.

Some folks just don't like technology, a situation which will hold back the Internet's penetration.

And then there are the unknowns. Who knew three to five years ago that the Internet would take off as it has? Who knows what will happen during the next three to five years?

Horowitz is a freelance writer in Salt Lake City.

WINNERS AND LOSERS

The new sales and marketing frontier is wide open right now. But not everybody will strike it rich. For every product or service that takes off on the World Wide Web, you're likely to see one that fizzles. Here are some experts' thoughts on possible gainers and laggards:

WINNERS

- Add-on or repeat sales are good candidates for the Internet, says Mark Douglas at CenterView Software.
- Northwestern University's Robert Blatberg favors goods deliverable over the Internet, such as software, music, encyclopedias and financial services.
- Products that appeal to techies, including computers, computer add-ons, even office furniture and equipment, are likely winners, says Michael Killen, president of Killen & Associates.
- Jules Street of Killen & Associates likes the prospects for commodity products that are easy to purchase, including mundane items such as soap.

LOSERS

- Blatberg thinks the prospects are dim for hard goods that need to be physically delivered and have service or other issues that need personal attention.
- Products dependent on impulse buys won't do well on the Internet, predicts Clay Ryder at Zona Research.
- Products or services easily delivered via the Internet will harm established categories such as local newspapers, says Steven K. Dieringer at Bank One.
- Companies with established channels of distribution will hesitate to use the Internet to compete with their dealers and might end up losers, says Dave Rush at Kurt Salmon Associates.
- Complex products requiring personal care and feeding by salespeople may not go over well on the Internet. "Life insurance has to be sold," says Diogo Teixeira, president of Tower Group. "When was the last time you saw a guy say, 'Gee, I think I'll go shopping for new life insurance?' People have questions, so they have to talk to a person." — Alan S. Horowitz

Ford's Indigo show car. New selling techniques for new products?

Sales force

CONTINUED FROM PAGE 127

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BY LESLIE GOFF

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CareerSite is well-organized, easy to use and results-oriented. Intelligent-agent technology lets users create profiles that seek matches to job openings based on concepts rather than merely keywords. Although it isn't specifically aimed at information systems professionals, it has turned up a plethora of IS jobs in recent searches.

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Review and refine the concepts list by indicating for each concept whether you desire, require or prohibit that choice. For example, do you require a job in the retail sector or merely desire it?

CW Career Agent
careeragent.computerworld.com

In a twist on the usual careers resources found on the World Wide Web, *Computerworld* this month launched CareerAgent, an online decision-support system. It employs an intelligent-agent technology that helps IS professionals create custom career plans tailored to their personal experience, skills, interests and goals. It also helps them find the requisite training and education resources to carry out the plans.

New features will be rolled out on a monthly basis through April. At press time, the site's training and education locator was operating, and skills assessment, skills gap identification, goal setting and career mapping were on the schedule. The training resource locator uses frames to its best advantage, offering a search form in the main frame accompanied by usage tips in the left-hand frame. Search for training by resource type — seminars, certificate programs, in-house training, technology-based training or books — and title keyword or phrase. Further refine the search by indicating location, time, keywords and how to display the information. The listings are up-to-the-minute and include a range of training vendors.

GET SMART

U.S. National Information Infrastructure Virtual Library
nii.nist.gov/nii.html

If you're still unclear about the infrastructure of the information superhighway, where your industry fits in or what you need to know to contribute to critical Internet projects in your company, this site has resources to get you on the road. The information ranges from detailed standards documents to articles and press releases. A little digging is required, but it yields relevant nuggets for any IS professional and leads to other linked sites that are worth bookmarking.

Quick-access buttons on the home page include the following:
- "Publications" give you a plethora of worthwhile papers and articles that unfortunately are alphabetized instead of categorized.
- "Industry" is a well-thought-out list of links to information technology industry organizations.
- "Standards" is a comprehensive archive of technology standards documents and related links.

X/Open
www.xopen.org

Still confused about the various flavors of Unix? This site tries to set the record straight on the ever-allusive Single Unix Specification. The Open Group, formed by the merger of X/Open Co. and the Open Software Foundation, owns the Unix language trademark. Its site serves as a virtual clearinghouse of standards, specifications and open systems initiatives. The content is tailored to both IS users and vendors. The Brand & Procurement section, for example, offers IS professionals a guide to finding products approved by the Open Group and tells vendors how to get the group's seal of approval.

Other resources for IS professionals include background information on the history of the Single Unix Specification and its implications for business, downloadable evaluation software and descriptions of Open Group initiatives in security, interoperability, distributed systems management, architecture and the Internet.

Xerox Palo Alto Research Center External Web Home Page
www.parc.xerox.com

Get a jump on the buzzwords you'll be hearing in the future, such as aspect-oriented programming, by checking out the research projects posted here. Some of the material isn't directly relevant to corporate IS, but the site is still worth surfing to simply find out what some of the brightest people in IT are thinking about. Of the site's six sections, Projects (20 are linked) and Personal Pages (there are 36) hold the most in store. If you live in the Bay area, click on Forums for a schedule of the Center's public events.

GET CONNECTED

Association of PC User Groups
www.apcug.org

User Group Connection Home Page
www.ugconnection.org

The Association of PC User Groups is a nonprofit support organization for nearly 400 global user groups. The key find at its site is Ash Nalwalla's Master List of Computer User Groups. The site features a comprehensive list of Internet resources for finding, starting and managing user groups. It covers brand- and platform-based user groups ranging from the AS/400 to the Z programming language, as well as regional user groups by state and country.

The site also features online user-group newsletters, such as "Blue Chips," a newsletter of the Utah Computer Society; user group discussion lists; related newsgroups; and even a link to a list of Web servers that offer free host space to user groups.

The User Group Connection is oriented toward the lower end of the market, and the original content hasn't been kept up-to-date. But the site offers a terrific user group locator that searches its database by city, state or area code. Entering NY and 212 into the form-based search engine garnered a list of 18 user groups.

Goff is a freelance writer in New York.

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- 31. Programming Management, Software Developers
- 41. Engineering, Scientific, R&D, Tech. Management
- 60. Sys. Integrators/VARs/Consulting Mgr.

CORPORATE MANAGEMENT
- 11. President, Owner/Partner, General Mgr.
- 12. Vice President, Asst. VP
- 13. Treasurer, Controller Financial Officer

DEPARTMENTAL MANAGEMENT
- 51. Sales & Mktg. Management
- 70. Medical, Legal, Accounting Mgt.

OTHER PROFESSIONAL MANAGEMENT
- 80. Information Centers/Libraries, Educators, Journalists, Students
- 90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase (Circle all that apply)

Operating Systems
- (a) Solaris
- (b) Netware
- (c) OS/2
- (d) Unix
- (e) Mac OS
- (f) Windows NT
- (g) Windows
- (h) NetX/Telap

App. Development Products ❑ Yes ❑ No
Networking Products ❑ Yes ❑ No
Internet Products ❑ Yes ❑ No

4. Which of the following software products do you buy, specify, recommend or approve the purchase of? (Please check all that apply)
- (a) ❑ Internet software
- (b) ❑ Internet browsers
- (c) ❑ Web authoring/development tools

B4-6 E

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1. BUSINESS/INDUSTRY (Circle one)
- 10. Manufacturer (other than computer)
- 20. Finance/Insurance/Real Estate
- 30. Medical/Law/Education
- 40. Wholesale/Retail/Trade
- 50. Business Service (except DP)
- 60. Government - State/Federal/Local
- 65. Communications Systems/Public Utilities/Transportation
- 70. Mining/Construction/Petroleum/ Refining/Agriculture
- 80. Manufacturer of Computers, Computer-Related Systems or Peripherals
- 85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
- 90. Computer/Peripheral Dealer/Dist./ Retailer
- 95. Other_____ (Please specify)

2. TITLE/FUNCTION (Circle one)

IS/MIS/DP MANAGEMENT
- 19. Chief Information Officer/Vice President/ Asst. VP IS/MIS/DP Management
- 21. Dir./Mgr. MIS Services, Information Center
- 22. Dir./Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr. Tech. Planning, Administrative Services
- 23. Dir./Mgr. Sys. Development, Systems Architecture
- 31. Programming Management, Software Developers
- 41. Engineering, Scientific, R&D, Tech. Management
- 60. Sys. Integrators/VARs/Consulting Mgr.

CORPORATE MANAGEMENT
- 11. President, Owner/Partner, General Mgr.
- 12. Vice President, Asst. VP
- 13. Treasurer, Controller Financial Officer

DEPARTMENTAL MANAGEMENT
- 51. Sales & Mktg. Management
- 70. Medical, Legal Accounting Mgr.

OTHER PROFESSIONAL MANAGEMENT
- 80. Information Centers/Libraries, Educators, Journalists, Students
- 90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase (Circle all that apply)

Operating Systems
- (a) Solaris
- (b) Netware
- (c) OS/2
- (d) Unix
- (e) Mac OS
- (f) Windows NT
- (g) Windows
- (h) NetX/Telap

App. Development Products ❑ Yes ❑ No
Networking Products ❑ Yes ❑ No
Internet Products ❑ Yes ❑ No

4. Which of the following software products do you buy, specify, recommend or approve the purchase of? (Please check all that apply)
- (a) ❑ Internet software
- (b) ❑ Internet browsers
- (c) ❑ Web authoring/development tools

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- Visual Basic, PowerBuilder
- PERL Script, Solaris
- UNIX
- USAF Samuel Adé Systems Spec.
- HMI
- IDEF0/IDEF1/IDEF1X
- C, C++

St Louis, MO
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- Network Installation
- UNIX Systems Administrators
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Programmer Analyst - Plan develop, test & document computer programs, applying knowledge of programming techniques & computer systems, evaluate user requests for new or modified programs to determine feasibility, cost & time required, compatibility with current system & computer capabilities, consult with users to identify current operating procedures & clarify program objectives, analyses & development of commercial applications integrate ADW server-based applications for Global Product Data Information System, design, development & testing of financial applications & using each of the following ORACLE FORMS, COBOL, CICS, DB2, VSAM, MVS & OS2. Reqs Bachelor's in Computer Science Systems Analysis, Computer Information Systems, Computer Engineering, Electrical Engineering, Electronic Engineering, Mathematics or its equivalent in ed & exp & 2 years exp. in the job offered or 2 years exp. in a related occup as a Programmer Programmer Analyst, Systems Analyst Software Engineer or Consultant. Will accept 3 years college ed plus 3 years exp. in the job offered or in a related occup in lieu of the required ed & exp. Must have some related exp. which included design, development & testing of financial applications & using each of the following: ORACLE FORMS, COBOL, CICS, DB2, VSAM, MVS & OS2. $42,940/yr. 40 hrs/wk. 8a-5p, M-F. Send resume to 7310 Woodward Avenue, Detroit, MI 48202. Include Ref #68896.

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ORACLE PROGRAMMER – Develop application/forms and web interface of Oracle-based systems.

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SYSTEMS ADMINISTRATORS – Maintain all developed and purchased application systems in an Internet-based environment.

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MULTIMEDIA DESIGNER

ART DIRECTOR

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SYSTEMS ENGINEER AND OPERATIONS – Engineer, implement and operate computer systems that drive Internet services.

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Systems Engineers (REF #CW1118c)
Requires familiarity with avionics and/or vehicle management systems. Requires experience with control systems engineering processes and structural analysis techniques. Must have knowledge of SW analysis and design techniques and tools. Knowledge of Matrix X desirable. Requires a BS degree as Engineering, Computer Science, Math, Physics or equivalent. Advanced degrees desirable.

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Requires a BS in Computer Science or Engineering and at least 1 year experience within a medium to large Novell 4.1 and NT 3.51 server system management environment of at least 500 workstations. Strong leadership skills and hands-on experience with PC hardware installations preferred.

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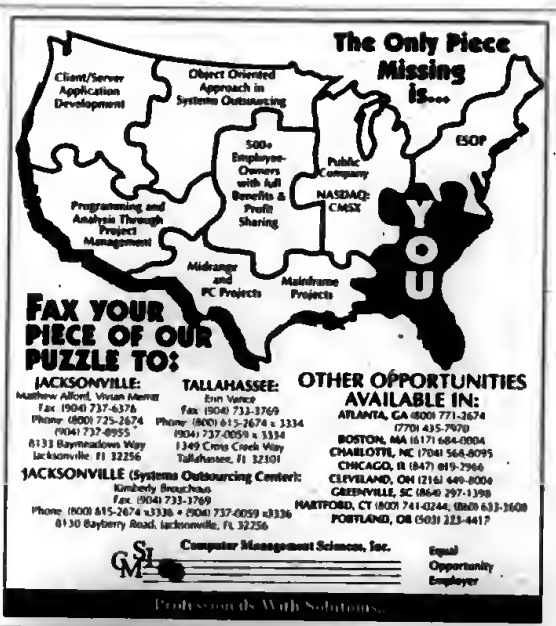

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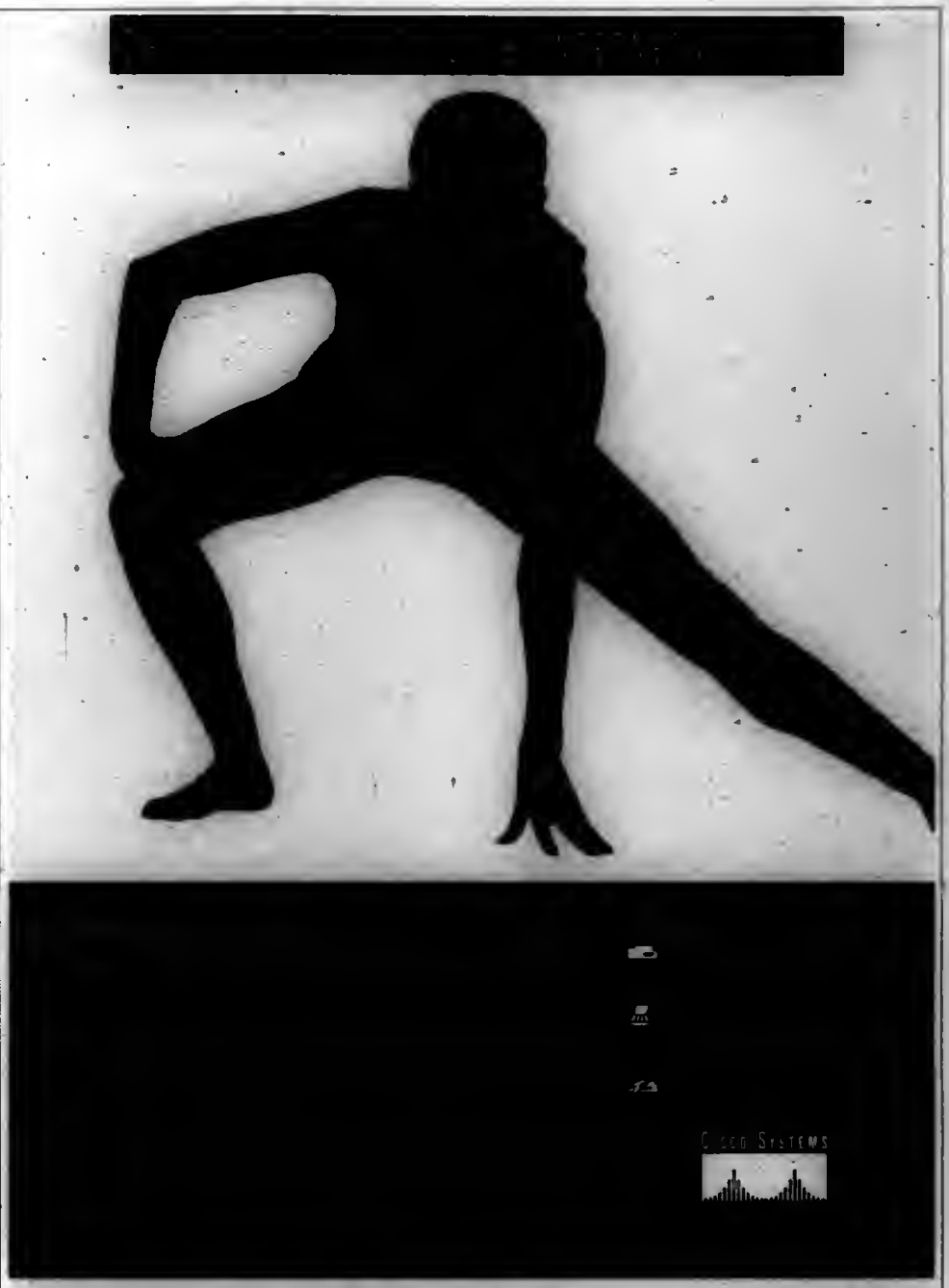

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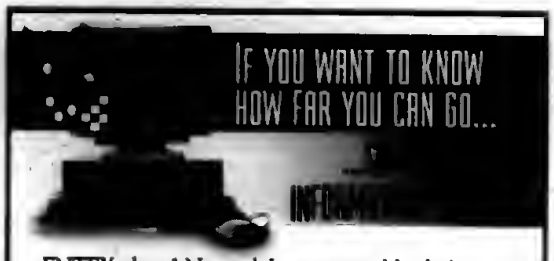

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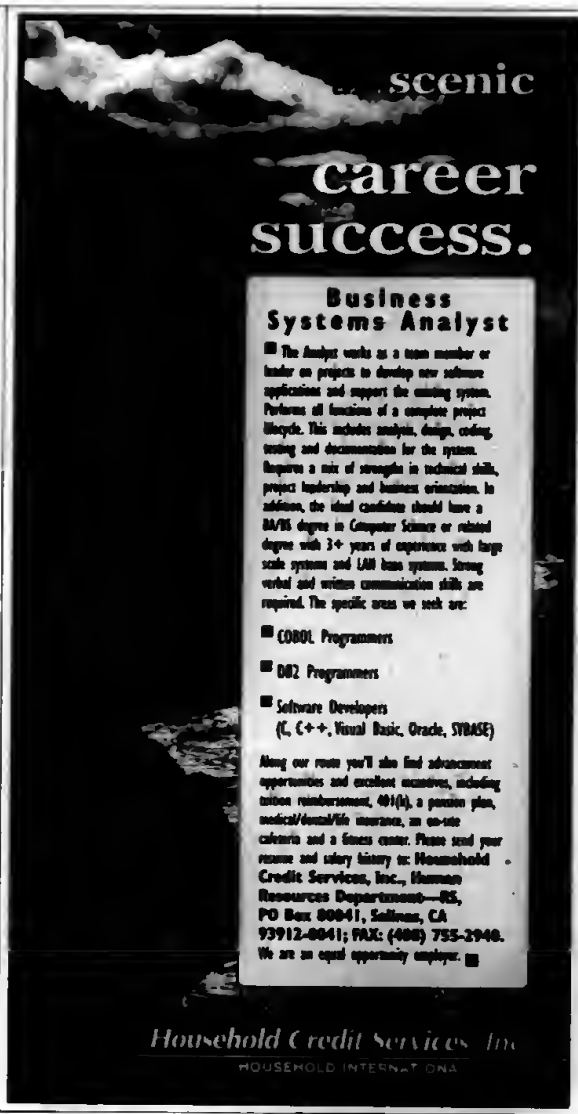

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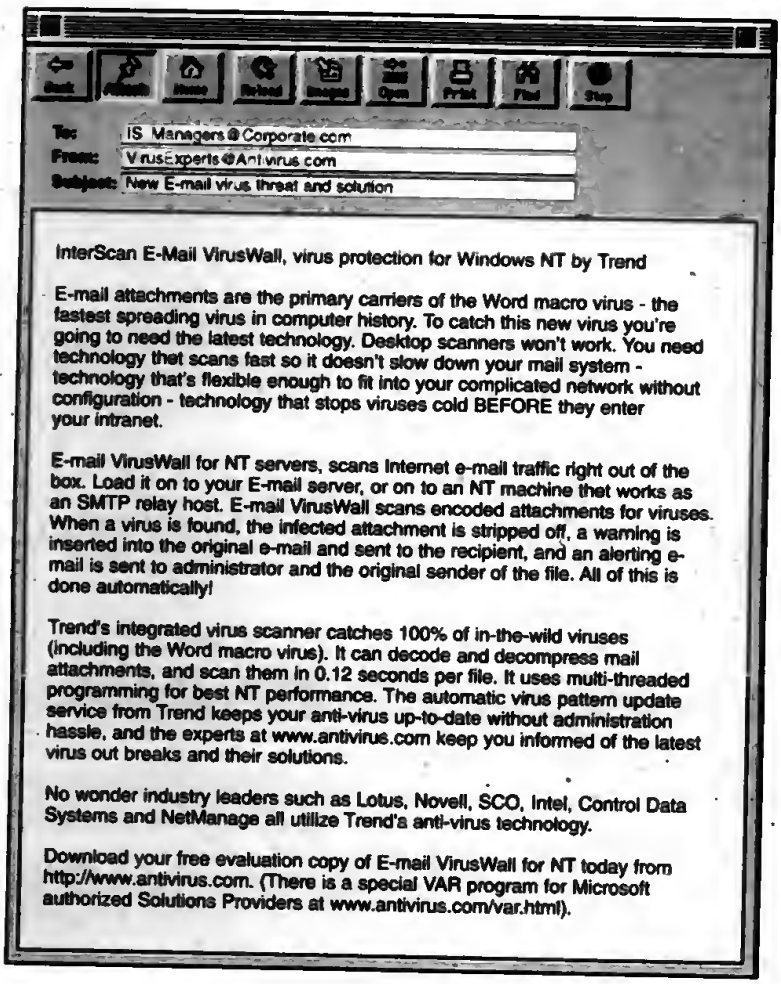

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Marketplace

High-capacity disks compete to displace low-end floppies

DISK STORAGE

By Steve Alexander

It's too early to pick a winner in the high-capacity floppy disk market, where Iomega Corp. Zip drives and multivendor LS-120 drives are jockeying for position. And both units remain too expensive to replace the standard 1.44M-byte floppy drive soon.

The Zip and the LS-120, which was developed by a consortium of four vendors, use different technologies to achieve similar storage capacities. Each 100M-byte Zip disk contains magnetically encoded instructions that tell the Zip drive where the disk's data tracks are located. Each 120M-byte LS-120 disk has a physical image of the data track pattern etched on one side of the disk. The drive locates the magnetic data tracks by shining a light-emitting diode on the disk and reading the reflections from the etched image.

But with OEM prices at $18 for a conventional floppy drive and $80 to $100 for Zip and LS-120 drives, analysts say the low-cost floppy disk drive is likely to be around for several more years. End-user prices today are $140 to $150 for the Zip drive and about $200 for the LS-120.

Media price differences parallel those of the drives; Zip and LS-120 disks sell for $10 to $20, compared with 50 cents or less for standard floppies.

"The real issue is going to be the speed at which either the Zip or LS-120 gains critical mass acceptance, and that will be determined in large part by the pricing," says Robert Abraham, vice president at Freeman Associates, a data-management consultancy in Santa Barbara, Calif.

"While OEMs will not insist on a penny-to-penny price match [between low-capacity and high-capacity floppy drives], there is a price expectation that has been set by the low-capacity floppy," Abraham says. "If you assume that either the Zip or the LS-120 will replace the standard floppy, it will be a long transition period that will be measured in years."

So far, the Zip and LS-120 drives only appeal to a specialized segment of PC users — a handful of storage-conscious consumers and people who work in industries such as advertising, commercial printing and software development, where large files are common.

About 5.1 million high-capacity floppy drives with an end-user market value of $825 million will be sold this year, nearly all of them Zip drives, says Bob Katzive, vice president at Disk/Trend, Inc. in Mountain View, Calif.

"That reflects the ramp-up time on the LS-120 and the fact that the Zip already is pretty well ramped up," Katzive says. "Also, most people don't have that much choice. When they go out to buy a high-capacity floppy, they can't find the LS-120 easily. But I think that will change somewhat in the next six months."

The relatively small number of high-capacity floppy drive shipments contrasts with shipments of about 90 million low-capacity floppy disk drives this year — nearly all of them the 1.44M-byte version, Katzive says.

The staying power of low-capacity floppies may have a lot to do with how people use them.

"Floppies are hardly useful for backup, but they still are used for software distribution and for file interchange between computers," says Mike Casey, research director for distributed storage systems at Gartner Group, Inc. in San Jose, Calif. "There are still a lot of files small enough for a 1.44M-byte disk, and a lot of companies are doing file-by-file backup or moving files around on floppies."

Although the LS-120 drive has what appears to be a big advantage — unlike the Zip drive, it can read and write to standard 1.44M-byte floppies — it hasn't made a big difference. Abraham says the Zip's lack of backward compatibility is a small disadvantage, not a fatal flaw, because it's counterbalanced by two other factors: "The Zip has a time-to-market lead over the LS-120 and a mind share lead, and both are very important."

Katzive adds, "If you are buying the Zip as a backup for a computer that already has a 1.44M-byte floppy, you probably don't care if it's backward compatible."

Although the LS-120 has 20% more storage capacity than the Zip, that also doesn't seem to have made much of an impression on prospective customers.

"The difference between 100M byte and 120M byte is small compared to the difference between 1.44M byte and 100M byte," Katzive says.

Alexander is a freelance writer in Edina, Minn.

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May 19 - 21, 1997
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Powerful Keynote Sessions

John Cross
British Petroleum

John Siegel
Price Waterhouse

Naomi Seligman
Research Board

Kicking off ETS '97 is John Cross, General Manager of IT for British Petroleum PLC. Cross discusses the "Transformation of the IT Function at British Petroleum" as they moved from a mainframe VMS environment to client/server. A special Integrator keynote has been added to the program this year, featuring John Siegel, National Internet Technology Domain Leader of Price Warehouse. The closing keynote is provided by Naomi Seligman, Senior Partner of the Research Board, who covers some of the data collected by her exclusive organization.

Technology Provider Strategy Panels

Here is your chance to hear from a senior level IT executive from an ETS sponsor company in a moderated panel format.Corporate strategies and future directions are revealed, as well as answers to questions about new technologies and emerging trends. Hear their stories and learn what you need to know about these companies in order to make beneficial IT investments.

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A Dynamic Forum Where IT Executives Get Answers On:

- **Distributed Computing**
- **Data Mining and Data Warehousing**
- **Doing Business with Internet Technologies**

Technology Panels

The following three, 60-miniute case-study panels discuss technology applications and implementation, including performance expectations, scope, process and return on investment.

Distributed Computing
Monday, May 19, 1997
Moderated by: Alan Alper
Editor, Magazines Group
Computerworld

The effective use of distributed computing technology raises new challenges for the IT executive. The following issues will be discussed to help you separate promises from reality and to effectively estimate the impact on your resources:

- migration of existing systems
- increased need for object-oriented development
- systems management procedures
- user file management and related fundamental security issues
- adequate hardware and software componentry
- language standards and interoperability

Data Mining and Data Warehousing
Tuesday, May 20, 1997
Moderated by: Alan Paller
Director, Research and Education
Data Warehousing Institute

Many issues plague the IT executive attempting to implement a successful data warehousing or data solution for their enterprise. Here's your opportunity to get the answers to the following questions:

- what kind of infrastructure is necessary to support the amount of data that will be stored and processed?
- do I need a relational database or multi-dimensional database?
- what set of tools will most appropriately support end-user needs?
- what are the real capabilities, the relative costs and the return?
- should analysis happen on the desktop or on the server and who has what level of access?
- search engine, text-retrieval engine and sort processesing options

Doing Business with Internet Technologies
Wednesday, May 21, 1997
Moderated by: Gay Sleninger
Vice President,
Giga Information Group

What are the viable solutions, the costs and the expected return from the corporate business perspective when doing business with Internet technologies? This is your opportunity to discuss solutions on:

- choice of architecture
- security and standards issues
- capitalization of the Internet for intranet purposes
- infrastructure support issues
- planning for effective use of the Internet beyond the year 2000

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CRAZY for ONLINE TRADING

When [illegible] Barocio goes online to buy or sell stocks, he says he has total control.

This private investor can take time to mull over investment decisions without feeling pressure from a broker. What's more, Barocio, a manager at an electronics manufacturer, says he has saved more than $1,000 in commissions since he began trading electronically in August. With online trading, "you have the information, and you can make your own decisions," Barocio says.

By Rosemary Cafasso

Because it makes trading easy and cheap, the online approach has caught on like wildfire. Tracking the number of online traders is difficult, but one firm estimates that well more than a million investors are now using online services to buy or sell stocks or analyze portfolios.

Simba Information, Inc., a market research and publishing firm in Stamford, Conn., estimates that nearly 1.5 million individual investors will be using trading services by year's end, up from 621,000 in 1994.

The dozens of online brokers together have processed millions of trades online. One broker, ETrade Securities, Inc., claims to have executed more than a million trades in the past year alone.

But industry observers warn that online trading isn't for everyone. Barocio, for instance, has been trading for 30 years and spends at least 10 hours a week researching and managing his investments. A novice who needs broker advice shouldn't try to fly solo online.

"There are downsides to it," says Peter Crane, an editor at IBC Financial Data, Inc. in Ashland, Mass., and author of Mutual Fund Investing on the Internet. "It just lends itself to fast trading, [and] traders can get caught up in that. You shouldn't consider [online trading] if you haven't done some other kind of trading on your own."

Observers recommend that investors evaluate online brokers not just on their fees, but also by their range of services. For example, not every firm will offer optional access to brokers. Ebroker, for instance, doesn't offer that service, but that's one of the reasons it charges only $12 per trade. Further, some firms don't provide access to any investor research materials.

Other companies, such as PC Financial Network, appear to be expensive but actually offer good deals. Although the company charges $39.95 per trade, it provides comprehensive research data, links to other sites and access to investment professionals.

Traders say it is important to look closely at the price structures because some companies charge additional fees beyond their basic trade fee.

For example, Mike Gutierrez, editor of *Computerized Investing*, a publication of the National Association of Individual Investors, says he had done business with K Aufhauser & Co., a popular online broker, but says the company "nickel-and-dimed transactions." Gutierrez says he found it confusing to work with the company's tiered fee structure, plus it charged a $2.50 handling fee for each trade. He subsequently moved to Ceres Securities, Inc., because it charges a flat rate of $18 per transaction.

It turns out both companies are owned by the same firm, Ameritrade Holding Corp. A spokesman says Aufhauser's fee structure was in place a year ago when Ameritrade acquired the company from Keith Aufhauser.

Investors should also visit several brokers' World Wide Web sites and evaluate their responsiveness to determine which they like best. For instance, Ken Anderson, a private investor who works in the accounting department at Iowa State University, says he narrowed his list of possible online brokers by first dismissing those with Web sites he found difficult to navigate. Anderson then selected Lombard Brokerage, Inc. because it was the quickest to respond to his request for company information.

Another tip is to visit chat forums such as Silicon Investor (www.techstocks.com) to check out what are often lively discussions about online brokers.

Ron La Vine, an online investor and president of The IntelliWorks, a research firm in Woodland Hills, Calif., says he was about to select ETrade as his online firm until he read some nasty comments about it on Silicon Investor. La Vine says he is aware of satisfied Etrade customers, but the negative remarks discourage him. Instead, he went with his current discount broker, Pacific Brokerage Service, which had recently begun trading online.

A SAMPLE OF ONLINE OPTIONS

Company	Basic fee	Minimum deposit
K Aufhauser & Co. www.aufhauser.com	One to 399 shares, $22.49; 400 to 1,700 shares, $31.60; 1,700 shares or more, 1.8 cents per share	$10,000; or $20 to open an account
PC Financial Network www.pcfn.com	$39.95 per trade, of up to 1,000 shares, 3 cents per share thereafter; frequent traders start at $29.95 per trade	None
ETrade Securities, Inc. www.etrade.com	$14.95 per trade of up to 5,000 shares of listed stocks; $19.95 per trade for unlimited quantities of Nasdaq stocks	$1,000
Datek Online www.datek.com	$9.99 per share of up to 5,000 shares; additional shares are considered a new transaction	$2,000

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The Week in Stocks

Gainers

PERCENT

FTP Software Inc.	37.1
Microcom Inc.	36.2
Network Computing Devices	25.9
Corel Corp.	23.2
Compuserve Corp.	21.9
Advanced Micro Devices	20.9
Adobe Systems Inc.	18.4
Digital Equipment Corp.	18.1

DOLLAR

IBM(H)	8.13
Microsoft Corp.(H)	6.75
Adobe Systems Inc.	4.50
Cadence Systems	4.00
Digital Equipment Corp.	5.25
Motorola Inc.(L)	5.13
Adaptec Inc.(H)	5.06
SGI Inc.	4.38

Losers

PERCENT

Arbor Software(L)	-18.2
Intelligent Info Systems(L)	-17.9
Exabyte Inc.	-17.6
Open Market Inc.	-16.0
Systemsoft Corp.	-15.8
Symbios Logic(H,L)	-15.6
Cabletron Sys.(L)	-14.6
Rambus Inc.	-13.6

DOLLAR

Arbor Software(L)	-8.13
Sun Microsystems Inc.	-5.88
Intel Corp.(H)	-5.63
Systemsoft Corp.	-4.75
Open Market Inc.	-4.25
Computer Horizons	-4.00
Sapient Corp.	-3.75
Amrega Corp.	-2.63

INDUSTRY ALMANAC

Keane's 21st-century bridges

Although the year 2000 problem will give many information systems organizations headaches, several vendors and systems integrators will undoubtedly see sunny days ahead. One company poised to benefit from year 2000 troubles is Keane, Inc. (Amex:KEA).

Russ Welty, an analyst at Hanifen, Imhoff in Denver, foresees Keane's stock price rising to the $60 mark in the next six to nine months while the company's revenue continues to grow at a 25% clip.

Keane has certainly been doing its part recently in building bridges to the 21st century. Every few days, the Boston software services company announces another contract to deliver year 2000 services to a needy company or government department. One analyst says Keane is winning three to four year 2000 contracts per week.

In late October, Keane received a five-year, $107 million contract from the Justice Department. Its latest financial results showed revenue and income up more than 18% over last year.

"Right now, everybody's in the initial phase of assessing the extent of their year 2000 problems," Welty says. "Keane's strength is its experience with an enterprisewide approach instead of an application-by-application approach to the year 2000. They're winning more of these contracts consistently, and that's reflected in their recent earnings statements."

Keane has developed a Year 2000 Compliance Methodology, which blends its technology migration and project management background with migration tools from another year 2000 vendor favorite, Viasoft, Inc. (Nasdaq:VIAS).

According to a recent report by Tarun Chandra, an analyst at Laidlaw & Co. in New York, the combination of this partnership and Keane's customer base will let Keane "substantially benefit from the year 2000 opportunity." — *Stewart Deck*

NEATO-KEENO

An abundance of year 2000 contracts has boosted Keane's revenue and stock price

Name	Symbol	Nov 15 Price	Nov 8 Price	Net Change	Net Pct Change
COMPS		71 75	51 00	1 COM Corp (H)	11 25
AUT		66 88	80 63	Ameritech Corp	90 00
T		50 88	58 75	AT&T	58 75
ASND		14 00	08 75	Ascend Communications (H)	88 38
BNYM		11 50	3 25	Bay Networks Inc (L)	4 00
BAX		80 00	10 13	Bay Networks Inc	25 25
BEL		80 20	15 38	Bell Atlantic Corp (L)	61 25
BLS		45 88	55 55	Bellsouth Corp	39 88
BRKR		45 75	8 00	Bruker Instrument Technologies	32 25
CS		81 13	51 00	Cabletron Systems	75 00
CSCC		81 25	25 63	Cascade Communications	76 50
CGRN		34 13	11 75	Centigram Communications (L)	13 81
CSCO		80 00	52 00	Cisco Systems Inc	50 88
CLIX		9 25	3 06	Clarify Inc	4 38
CNNX		10 00	4 00	Computer Network Tech	5 00
CDN		11 00	4 75	Cadence Corp	5 00
DIGI		41 25	12 63	DSC Communications	39 88
FORE		64 75	25 13	FORE Systems Inc	41 00
GDC		21 88	8 13	General Datacomm Indus	11 00
GSN		44 25	20 50	General Signal Networks	41 00
GTE		48 13	51 25	GTE Corp	44 13
LU		31 00	29 75	Lucent Tech	30 13
MADGF		40 63	8 13	Madge Networks NV	8 13
MCIC		31 00	22 00	MCI Communications Corp	58 88
MNPI		34 50	9 50	Micrognosis Inc	11 75
NETM		34 00	3 50	Netmanage Inc (L)	6 00
NTRX		10 00	2 75	Netrix Corp	5 00
NCSN		8 00	1 00	Network Computing Devices	8 13
NWK		66 00	11 13	Network Equipment Tech	13 81
NETG		25 63	12 00	Network General	28 75
NN		57 25	35 75	Newbridge Networks Corp	52 75
NT		68 00	30 50	Northern Telecom Ltd. (H)	68 81
NOVL		10 13	8 75	Novell Inc	10 75
NYN		50 25	42 00	Nynex Corp	46 25
OCTL		51 75	12 63	Octel Communications Corp	16 94
ODSI		34 75	15 00	Optical Data Systems Inc	18 38
PAC		35 75	25 00	Pacific Telesis	34 75
PCTL		64 13	24 88	Picturetel Corp	54 00
PYON		8 88	2 00	Paradyne Inc	2 31
RACD		7 00	1 00	Racotek Inc	1 13
RETX		19 00	1 81	Retix	8 75
SBC		60 25	48 00	SBC Communications	48 50
SFA		80 38	12 00	Sefamerica Atlanta Inc	15 25
SHVA		8 13 25	25 13	Shiva Corp	28 63
SUN		45 00	25 25	Sonoma Corp	42 13
SMSC		25 00	8 38	Standard Microsystems Corp (L)	9 63
USRX		105 00	52 25	US Robotics	66 94
USW		31 00	21 25	US West Inc	30 75
XIRC		21 75	8 13	Xircom	18 63
XYLN		30 00	24 00	Xylan Corp	41 50

Name	Symbol	Nov 15 Price	Nov 8 Price	Net Change	Net Pct Change
AALR		12 75	5 50	Advanced Logic Research (H)	10 56
APLE		24 50	16 00	Apple Computer Inc	23 00
ASTA		10 00	6 00	AST Research Inc	8 00
CPQ		76 00	23 88	Compaq Computer Corp (H)	75 75
DELL		61 50	21 00	Dell Computer Corp (H)	90 63
GATE		57 85	10 00	Gateway 2000 Inc	52 75
HWP		59 75	36 88	Hewlett Packard Co	50 38
MUEI		25 50	8 75	Micron Electronics Inc	12 00
NIPNY		81 38	40 88	NEC America	59 81
SGI		30 75	17 88	Silicon Graphics	30 13
SUNW		70 25	30 00	Sun Microsystems Inc	58 63

Name	Symbol	Nov 15 Price	Nov 8 Price	Net Change	Net Pct Change
AMH		13 50	6 75	Amdahl Corp	10 75
DGN		19 13	8 00	Data General Corp	14 13
DEC		76 50	26 38	Digital Equipment Corp	54 25
IBM		140 63	81 13	IBM (H)	141 63
MDCO		20 75	6 00	Meridian Data Inc	7 00
NETF		8 00	2 50	Net Frame	3 00
SQNT		18 13	10 13	Sequent Computer Sys	18 00
SEQS		8 13	1 88	Sequoia Systems Inc	2 31
SBA		35 00	18 63	Storage Computer Inc	24 13
TDM		15 31	2 50	Tandem Computers Inc	13 63
WIS		8 13	5 38	Wyse Corp	8 25

Name	Symbol	Nov 15 Price	Nov 8 Price	Net Change	Net Pct Change
ADBE		48 25	28 50	Adobe Systems Inc	41 88
AMSWA		8 75	5 63	American Software Inc	7 75
APLX		63 00	34 75	Apple Inc	53 75
APSW		82 13	34 13	Aspect Software (L)	80 75
ADSK		44 25	18 00	Autodesk Inc	43 00
BCSS		55 50	34 88	BCS Systems Inc (H)	53 88
BMCS		82 63	34 75	BMC Software Inc (H)	82 38
BOOL		52 50	18 25	Boole and Babbage	49 25
BORL		21 25	4 75	Borland Int'l Inc	5 75
BOBJY		53 50	9 50	Business Objects (L)	9 50
CAYN		11 00	4 00	Cayenne Software Inc	4 25
CNTR		2 06	2 88	Centura Software	3 13
CYE		18 50	14 13	Cognitive Software Inc	18 13
COGNF		18 50	10 00	Cognos Inc (H)	15 00
CA		86 75	37 88	Computer Associates	80 13
CVN		15 00	5 75	Computervision Corp	8 25
CPWR		81 00	15 00	Computware Corp (H)	18 44
CSRE		52 00	10 13	Consumer Software	14 00
COSFF		10 00	6 50	Corel Corp	8 00
CNTY		13 00	3 25	Datawatch Technologies Inc	4 19
FILE		57 00	20 00	Fourth Shift Corp	28 75
FRTZ		89 75	24 75	Fortz Software	38 00
FTPS		80 63	6 00	FTP Software Inc	7 00
HUMC		88 50	23 00	Hummingbird Comm Ltd.	37 00
HYSW		24 88	8 75	Hyperion Software Corp	25 00
IFIC		10 75	10 00	Information Dimensions	11 25
IFMX		36 75	16 88	Informix Corp	30 00
INGR		80 75	8 63	Intergraph Corp	9 00
ISAF		12 38	2 00	Interactive Inc	2 81
ISLI		10 50	7 00	Interleaf Inc	7 75
INTU		81 75	25 00	Intuit Inc	25 75
LGWB		32 25	5 50	Logic Works	5 94
MAPE		22 75	5 50	Mapinfo Corp	10 75
MATH		9 25	3 25	MathSoft	3 75
MCAF		32 88	14 00	McAfee Associates	23 75
MENT		21 50	1 50	Mentor Graphics (L)	3 00
MFGY		25 25	8 25	Micro Focus	13 50
MCIS		18 63	5 13	Microcom Inc (L)	5 13
MSFT		148 75	70 88	Microsoft Corp (H)	148 75
ORCL		46 75	26 88	Oracle Corp (H)	46 50
PMTC		54 00	25 88	Parametric Technology	48 38
PARQ		14 63	2 25	ParcPlace Systems Inc	2 69
PSFT		81 88	34 25	Peoplesoft (H)	38 25
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PSQL		13 00	2 38	Platinum Software	11 81
PLAT		10 75	8 25	Platinum Technology	11 63
PROS		28 00	12 13	Projacs Software Corp	28 88
PNBO		25 00	14 63	Progress Technologies Inc	18 88

Name	Symbol	Nov 15 Price	Nov 8 Price	Net Change	Net Pct Change
BBDB		21 00	10 25	Bio Data Systems Inc	15 00
SAPE		66 25	25 25	Sapient Corp	41 75
SCOC		9 11	5 50	SCO Inc	8 75
SDTI		100 00	54 25	Security Dynamics Tech	79 75
SKEY		35 00	11 50	Software Key Components Inc	30 00
SPCO		4 25	3 00	Software Publishing Corp (L)	3 25
SQAI		80 75	68 00	SQA Inc	80 19
SOTA		10 75	8 13	State of the Art	12 00
SSW		81 00	28 25	Sterling Software Inc	81 00
SDRC		47 38	15 00	Structural Dynamics Research	38 13
SYBS		30 75	11 50	Sybase Inc	30 75
SYMC		30 75	8 75	Symantec Corp	15 00
SNPS		30 50	21 00	Synopsys	47 00
SSAX		80 50	8 25	System Software Assoc	12 00
SYSF		36 00	9 50	Systemsoft Corp	20 00
TRIV		8 63	5 50	Trusted Info Corp (L)	6 06
VIES		13 00	6 50	Vieo Logic Systems	8 75
VLAM		12 66	5 50	Vidam Software Inc	8 00
WALE		45 38	6 25	Wallace Interactive Systems	18 75
WALI		24 00	10 25	Wall Data Inc	15 00
WANG		50 11	45 50	Wang Laboratories Inc	25 00

Name	Symbol	Nov 15 Price	Nov 8 Price	Net Change	Net Pct Change
AOL		71 00	22 50	America Online	30 50
BBN		30 75	15 63	BBN Corp	30 00
CSRV		35 00	8 00	Computervision Corp	11 00
EDIT		50 75	15 75	Edify Corp	40 00
LCOS		86 85	5 75	Lycos Inc *	31 00
NETC		88 38	12 50	Netcom On-Line	35 88
NSCP		87 00	34 50	Netscape Comm Corp	57 75
OMKT		42 75	11 50	Open Markets Inc	31 00
PSHR		25 00	8 75	PSINet *	30 63
QDEX		30 50	5 00	Quadrangle Corp (L) *	4 00
RAPT		30 25	12 75	Rapture Systems	20 50
SCUR		80 00	8 00	Security Computing Corp	9 00
SPYC		61 00	30 88	Spyglass Inc	31 00
WHDO		45 00	15 50	Wandoo Inc	36 88

Name	Symbol	Nov 15 Price	Nov 8 Price	Net Change	Net Pct Change
AMD		24 63	10 25	Advanced Micro Devices	24 63
ADI		51 25	11 00	Analog Devices Inc (H)	35 13
CHPS		30 50	8 00	Chips and Technologies (H)	30 50
CRUS		30 00	12 63	Cirrus Logic	30 00
CX		11 00	8 13	Cypress Semiconductor Corp	11 00
CYRIX		80 75	31 50	Cyrix	80 50
INTC		125 13	80 81	Intel Corp (H)	118 13
LSI		40 00	11 50	LSI Logic Corp	30 00
LSCC		41 50	16 75	Lattice Semiconductor (H)	30 00
MCRL		25 50	12 00	Micrel Semiconductor Inc	23 25
MU		80 50	16 66	Micron Technology	31 13
MOST		80 50	30 13	Mosaic Semi Inc (L)	33 25
NSM		30 00	11 00	National Semiconductor	22 50
TXN		85 00	60 00	Texas Instruments	85 00
VLSI		21 75	10 50	VLSI Technology	20 66
XLNX		40 50	21 75	Xilinx	40 00
ZIGC		40 50	14 00	Zilog Inc	30 50

Name	Symbol	Nov 15 Price	Nov 8 Price	Net Change	Net Pct Change
APCC		25 00	7 50	American Power Conversion (H)	24 50
ADPT		70 13	55 00	Adaptec Inc (H)	68 75
CBIX		8 50	3 50	Cabletron Corp (L)	2 56
CREAF		11 50	5 50	Creative Technology Ltd	8 00
DACE		12 75	3 00	Data Race Inc	8 75
DTMI		8 01	4 12	Datotech Corp	8 00
EMC		29 88	19 13	EMC Corp (H)	25 50
EMULX		21 00	5 50	Emulex Corp	16 44
ESCC		25 00	18 00	Exabyte Corporation	22 75
EXBT		30 75	11 50	Exabyte *	15 00
HSLF		4 13	9 00	Intelligent Info Systems (L)	9 00
IOMI		55 13	5 25	Iomega Corp	80 00
IRLS		8 00	1 63	IRL Systems Inc	1 50
MMAG		21 00	10 63	Komag Inc	25 88
MTSI		24 25	11 25	Micro Technology Inc (H)	23 00
PEAK		30 75	10 13	Peak Technology Group (L)	11 00
PNCL		10 75	4 00	Pinnacle Micro Inc	5 00
AQM		8 75	3 25	Quest Inc	5 75
QNTM		10 13	10 00	Quantum Corp	80 13
RDUS		4 50	0 50	Radius Inc	1 19
SEG		23 75	10 13	Seagate Technology (H)	12 00
STE		40 25	25 00	Storage Technology (H)	40 25
STUC		8 75	0 75	Storage Dimensions (L)	0 94
TEK		90 00	60 75	Tektronix Inc	90 00
WDC		17 50	14 00	Western Digital Corp (H)	30 50
XRO		30 25	10 50	Xerox Corp	47 75

Name	Symbol	Nov 15 Price	Nov 8 Price	Net Change	Net Pct Change
AMSY		11 38	17 00	American Micro Systems	12 00
ANLY		68 50	11 63	Analytics Inc (L)	11 50
AUSI		45 75	34 50	Auto Data Processing	41 75
BDAK		68 38	24 25	BDM International Inc	52 00
CATP		51 25	11 88	Cambridge Tech Partners (H)	30 38
CEN		90 00	36 63	Computer Assoc	61 00
CISCO		21 00	10 00	Computer Int'l Inc	10 25
CMRZ		54 00	11 00	Computer Horizons	31 75
CSC		80 75	66 13	Computer Sciences	76 00
TSG		43 50	16 75	Computer Task Group (H)	41 13
CPU		66 75	12 00	CompUSA Inc	80 50
CDAT		80 63	32 75	Control Data Systems Inc	80 00
EGGS		11 50	6 75	Electronic Data Systems Corp	11 38
EDS		63 38	40 75	Electronic Data Systems Corp	45 25
IMAC		30 50	10 13	Imation Corp	31 25
INLS		11 50	5 50	Intelligent Electronics	7 00
KEA		80 88	18 88	Keane Inc (H)	30 00
MICA		25 50	11 00	Micronics Inc (H)	21 00
MYX		65 63	80 63	Maxwell	58 88
PMFS		55 50	55 13	Policy Management Sys	36 63
SBY		80 25	10 75	Systems and Computer Tech	30 25
SCB		30 50	10 00	SCB Computer Tech Inc	10 00
SEIC		30 50	17 75	SEI Corp	21 00
SHRED		75 13	60 00	Shared Medical Systems	90 00
SSPE		12 00	11 00	Software Spectrum Inc (H)	80 00
VST		80 75	0 00	VanStar Corp	10 00
SNDT		67 50	21 50	Sundisk Data Systems	41 50

KEY (H) = New annual high reached in period (L) = New annual low reached in period

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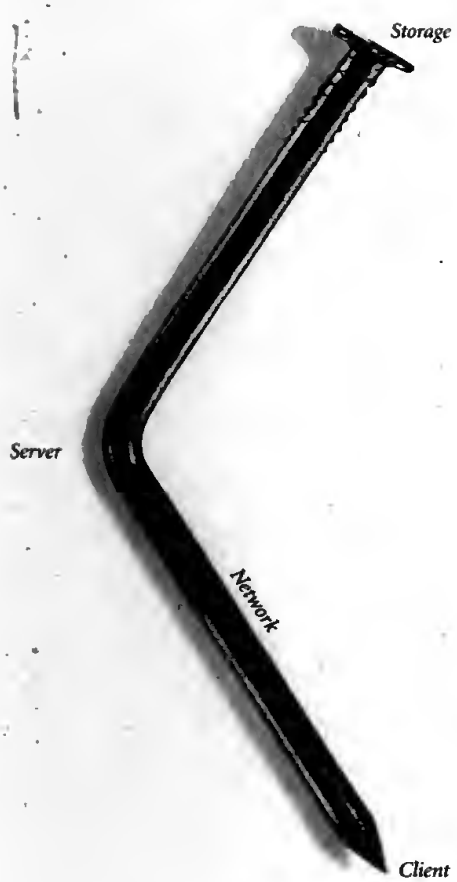

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How to contact Computerworld

TELEPHONE/FAX

Main phone number ..... (508) 879-0700
All editors unless otherwise noted below
Main fax number ..... (508) 875-8931
24-hour news tip line ..... (508) 820-8555

E-MAIL

Our Web address is www.computerworld.com
All staff members can be reached via E-mail on the Internet using the form:
firstname_lastname@cw.com
All IDG News Service correspondents can be reached using the form:
firstname_lastname@idg.com.

LETTERS TO THE EDITOR

Letters to the editor are welcome and should be sent to:
letters@cw.com.
Please include your address and telephone number

MAIL ADDRESS

PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701

SUBSCRIPTION/BACK ISSUES

Phone ..... (800) 669-1002
E-mail ..... circulation@cw.com.
Back issues ..... (508) 820-8129

REPRINTS

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CONTACTING CW EDITORS

We invite our readers to call or write with comments and ideas. It is best to submit ideas to one of the department editors as well as to the appropriate beat reporter.

Editor Paul Gillin (508) 620-7724
Executive Editor Maryfran Johnson (508) 820-8179

Department Editors/News

News Editor Patricia Keefe (508) 820-8153
Sections Editor Kevin Fogarty (508) 820-8246
Assistant News Editor Neal Weinberg (508) 820-8177
Assistant Sections Editor Michael Goldberg (508) 620-7789
Online Editor Johanna Ambrosio (508) 820-8553
Associate Editor, News Mitch Betts (202) 347-6718

Senior Editors/News

Government and security Gary H. Anthes (202) 347-0134
LANs, operating systems Laura DiDio (508) 820-8182
Network/systems management Patrick Dryden (817) 924-3485
IS management Thomas Hoffman (201) 587-0090
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Midrange hardware, Unix operating systems Jaikumar Vijayan (508) 820-8215
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Internetworking Bob Wallace (508) 820-8214

Senior Writers/News

Mobile computing, social issues Mindy Blodgett (508) 820-8168
Application development components Sharon Gaudin (508) 820-8122
PCs, PC software April Jacobs (508) 820-8121
Mainframes, high-end storage Tim Ouellette (508) 820-8215

Staff Writers/News

@Computerworld Stewart Deck (508) 820-8155
Telecommunications Kim Girard (508) 820-8223
New products, multimedia, low-end storage Matt Hamblen (508) 820-8567
@Computerworld Justin Hibbard (415) 548-5515
Client/server software, Unix apps Randy Weston (508) 628-4869

Opinions/Viewpoint

Technical Editor Charles Babcock (415) 548-5512
Viewpoint Editor Mitch Betts (202) 347-6718
Staff Columnist Frank Hayes (303) 252-0100

Department Editors/Features

Technology reviews/ Buyer's Guide James Connolly (508) 820-8144

Senior Editors/Features

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In Depth Steve Ulfelder (508) 620-7745
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Associate Editors/Features

Managing Rick Saia (508) 820-8118

IDG News Service Correspondents

Paris bureau chief Marc Ferranti (33) 1-4904-8001
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Research

Bob Funk, senior research manager (508) 820-8178; Kevin Burden, senior researcher; Laura Hunt, research analyst; Amy Malloy, assistant researcher; Stefanie McCann, senior graphics coordinator; Mari Keefe, online researcher

Copy Desk

Ellen Fanning, managing editor (508) 820-8174; Roberta Fusaro, assistant managing editor; Christine Ascardi Maguire, senior copy editor; Michelle Davidson, Kimberly Gilliard, senior production copy editors; James Eckle, Pat Hyde, David Ramel, Jeremy Selwyn, copy editors; Monica Sambataro, online copy editor

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NC vs. PC: Which has lowest cost of ownership?

At the heart of the debate over network computers and PCs is the question of which machine provides the lowest total cost of ownership. Computerworld staff writer Justin Hibbard spoke with three industry analysts to probe the subject. Joining the roundtable discussion were Jack Gold of Meta Group, Inc. in Waltham, Mass., Brian Murphy of The Yankee Group in Boston and Chris Christiansen of International Data Corp. in Framingham, Mass.

CW: What elements make up the total cost of owning a PC?

Gold: The single biggest cost is administration and support. Then there's upgrades and help desk. The cost of the hardware and software is about 20%.

Christiansen: On a cost-of-ownership basis, most of it is staffing. Operations staffing is 70% to 80% of the cost.

Murphy: The $12,000 to $13,000 [total cost of ownership for one PC] per year that you hear about in the industry is, in most cases, fiction.

It's going to depend on the company and the level of support they're going to provide. But the real issue is productivity. Whatever productivity gains you associate with PCs, users aren't getting them.

CW: Can the network computer really decrease the total cost of ownership?

Gold: If you're a user concerned with centralized management, security and everyone playing off the same sheet of music, then the [network computer] might make sense as a replacement for the old X terminal world. In theory, you could go to centralized software licensing, and you could save some money there. But if you're using it as a replacement for PCs on the desktop, it's not going to work.

Christiansen: I personally would rather have [a network computer] because there are a lot of administrative management issues that I don't want to have to deal with. I don't want to have to manage version control across the group I work in, for instance. But most people want power; they want ownership.

Murphy: I don't think the technology [for the network computer] is completely there. The promise is this: Instead of installing a word processor and spreadsheet program on everyone's PC, you install it on a server. That's the main savings. There's a degree of streamlined software management. But do companies have the bandwidth on their networks to download all those applications?

The network computer is not going to be a slam-dunk success, but it does offer an alternative to the Wintel monopoly, [which] I think is going to be compelling to a lot of people.

CW: Microsoft Corp. recently announced a reference design for the NetPC, a simple, sealed-case PC with a 100-MHz or faster Intel Corp. Pentium processor, 16M bytes of RAM and an optional hard disk. It also announced the Zero Administration Initiative for Windows, which is supposed to automate and centralize PC administration. Will these measures decrease the cost of owning PCs?

Christiansen: Skimming down a PC is going to be a lot more difficult to design [vs.] just starting from scratch with a network computer, where the form was designed around the function. It's tough to take a Lexus and convert it into a Chevette. But you could get a Chevette with some outrageous imagination for the price of a Lexus.

Murphy: Why would anyone in their right mind buy a NetPC, given that you can buy a machine with a hard drive for just $100 more?

This whole Zero Administration Initiative is [Microsoft's] version of the network computer. It's their standard services repackaged to sound palatable to people who are interested in the network computer.

Net devices may lower license fees

CONTINUED FROM PAGE 1

One user said she was still unsure if network computers would play a role in her company. But she said anything that streamlines the process of managing software licenses and cuts software costs is worth a look.

"It's a not like anyone is really giving a great deal on a LAN pack. If you've got 30 users, you still have to buy 30 licenses," said Claudia Burmeister, MIS manager at Geiger Brothers, Inc., an advertising and printing company in Lewiston, Maine, that has about 200 PCs. "I want concurrent licensing options, and that seems likely with [network computers]."

LEGALESE LICENSING

The current approach to licensing desktop applications often involves reams of paper filled with clauses, stipulations and restrictions that vary among software providers.

The fact that applications used on a network computer reside on the server, not on the user's desktop, points to a server-based licensing model. That would allow companies to purchase a specific number of server licenses and get unlimited client versions for free.

Similar to how client/server applications are priced and licensed, a server-based model could further streamline the process of managing licenses. It would make it easier to determine which applications are being used and who is accessing those applications, users and analysts said.

TRICKY TRANSITION

But the transition period could be tricky as software developers contemplate licensing in the network computer and PC environments. Users will have to deal with the current desktop application licensing schemes and prepare to manage the way applications that run on a network computer are licensed.

One industry watcher was hopeful.

"The model that has worked traditionally for software pricing for users at terminals is perfectly reasonable for users that sit at [network computers]," said Jeffrey Tarter, editor of "Softletter," an industry newsletter in Watertown, Mass. "This model is finely honed and used by most server-oriented companies. Oracle doesn't have to reinvent pricing to sell its [network computer] terminals."

But Tarter also said software companies that derive a large portion of their revenue from traditional desktop software licensing models — such as Microsoft Corp. — could be adversely affected by the network computer's server-centric approach.

"There is no accident Microsoft is kicking and screaming about the [network computer]," Tarter said.

"Pricing is the single area where Microsoft is deeply vulnerable. This is the kind of thing that makes Bill Gates not sleep at night," Tarter said. "This is a scary thing to a company like Microsoft that sells applications on the desktop. [Network computer] applications will be server-based and cost less and could loosen the grip Microsoft has on the software world."

Officials at several leading software companies, including Lotus Development Corp. and Corel Corp., said they are rethinking pricing and licensing models to accommodate software that runs on NCs and desktop PCs. But neither company would provide details.

In the Redmond, Wash., software giant's defense, Jonathan Roberts, Microsoft's director of product management at the Desktop and Systems Business division, claims Microsoft already has a server pricing model — called Client Access Licensing (CAL) — that is widely emulated throughout the industry.

"I don't see a fundamental shift in our licensing. We have been doing Client Access Licensing for a long time with Windows and BackOffice," Roberts said. "PCs are not going away, and users will continue to need operating systems and desktop software."

Applets, components complicate issue

The emerging class of components and applets is expected to help drive down software prices, but it also could complicate the licensing landscape.

"This licensing and pricing could be worse than ASCAP [the music industry's model for doling out royalty payments]," said Jeffrey Tarter, publisher of "Softletter," an industry newsletter in Watertown, Mass.

"I pity the poor corporate developer who tries to deploy and build applications with components," Tarter said. "This has the potential to be a pricing nightmare."

But the good news is that a handful of companies are readying encapsulation technologies that will let developers build pricing and licensing rules in to their components.

Another option, according to one user, is that the proliferation of network computers could lead to an Internet-based software rental scheme that could lower costs and ease licensing headaches.

"The legal, licensing and maintenance requirements might eventually make it cheaper for users to rent the software," said Mike Bailey, a systems analyst at Lockheed Martin Missiles & Space in Sunnyvale, Calif., which has more than 10,000 Macintoshes and 7,500 PCs. "Suddenly, then it's not a software purchasing decision — it's a software usage decision." — Lisa Picarille

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COMMENTARY

The Internet's lessons are lost on Microsoft

David Coursey

I'm still reeling from the truckloads of Internet-related announcements Microsoft has churned out in the past few weeks. Active This, Dynamic That, an overload of marketing-speak atop ... well, atop what? Is this style? Substance? A mixture of both?

At the recent Site Builder Conference in San Jose, Calif., Microsoft unveiled — with no advance warning — something called the Active Platform, along with a bushel basket of tools, technologies and trinkets. Oh, and the company also introduced a whole new platform, the NetPC, which I wrote about last week.

This isn't the way Microsoft is supposed to work. Usually, Microsoft executives crisscross the country ahead of major announcements, making sure the press and analysts understand what's going on. Sometimes, Microsoft even changes its direction based on the feedback these tours generate. The only briefings held before the Site Builder shindig were on behalf of the oew Merchant Server, a World Wide Web storefront package.

You see, Microsoft isn't the monolith many customers think it is. Microsoft screwed up this announcement. Why? Because many people had the ability to make bad decisions (such as piling a month's worth of news into a single day), and there wasn't a single person who could stop them.

Someone should have stepped in and sent everybody back to the drawing board. If Microsoft wants to repackage its Internet and intranet technologies and products into a single architectural statement called the Active Platform, fine. But when the company added Active Desktop, Active Server, Internet Studio and Dynamic Hypertext Markup Language (HTML) — all tied to ActiveX — it appeared that Microsoft was introducing a new product line. Which it wasn't. The company was just adding new umbrella names for old — if still unreleased — friends. Believe it or not, this was supposed to make things easier to understand.

All of this, I suspect, is supposed to take our minds off the fact that Microsoft's commitment to the openness of this new architecture leaves much to be desired. Microsoft is happy to write a check to the Open Group and the World Wide Web Consortium to buy ActiveX and Dynamic HTML respectability. But it isn't willing to open up all the technology behind the standards, so standards that are eventually created will be hollow.

This affair shows how little Microsoft has learned about the Internet phenomenon and how badly the company wants to turn the 'net into something it does know.

The Internet is about open standards that are widely shared and reasonably simple, good-enough technologies that people know how to use. But Microsoft is about the constant, never-ending march of technology, one replacing the other before the first is fully implemented. It's about making promises that, while not lies, are usually overtaken by events before they're fully kept.

Microsoft is about getting people to buy the upgrades so there's money to build the next upgrade. This isn't necessarily bad; Microsoft has actually done more for customers than any other company. But it's also done a lot *to* customers in the process.

Microsoft must commit to reducing complexity and supporting truly open standards. Those are the lessons of the Internet. It clearly hasn't mastered them.

Coursey, an analyst and consultant, is editor of "coursey.com," an online newsletter available at www.coursey.com. His E-mail address is david@coursey.com.

Don't forfeit IS' gains for network computer

Charles Babcock

IS has long struggled to overcome its house-of-glass/feet-of-clay image. It has preserved the value of the mainframe while venturing out to support end users in a raft of new client/server endeavors, salvaging success out of something that had the potential to be a mess. Now it must consolidate its gains and capitalize on its newfound trust from end users.

Instead, it's considering the network computer. That's the *last* thing the IS department needs. IS is already fighting to upend its reputation for being glacial in its responsiveness and CroMagnon in its understanding of end users.

At first glance, the case for the network computer is appealing. Simplified desktops based on a few technical standards will reduce those $8,000-to-$12,000 annual costs tied to PCs. (I have yet to see the calculation that factors in the cost of relocating storage out on the network and increasing the network's bandwidth, but let's not quibble. We will award some expense saving to the network computer.)

Even so, IS managers shouldn't volunteer to carry this case to the people.

They may want to because they intuitively understand the benefit of having controls moved away from the desktop to a server, which they can upgrade and manage more easily than hundreds of desktops. The network computer user sits in a constrained world, downloading applications when needed and interacting with other users through a few conventions, such as E-mail and a browser. Network computer users are borrowers of what they find. They own neither the application nor the data.

That's a good thing, network computer advocates say, and they have a point. But the deeper organizational issue is whether we've tallied the gains of empowering workers with PCs as well as we've tallied the costs. Business benefits when workers not only sit in front of an expanding universe, but also feel they own a piece of it.

IT'S ALL POLITICS

So IS doesn't need a technical case for the network computer; it needs a political one. "The network computer helps this organization achieve..." "The network computer will empower you to..."

And here the paradigm shift that the network computer is said to represent breaks down. If it's important to activate the individual in the organization, then the flexible PC still has a big edge over the network computer.

Nor is there a user community clamoring for the advances represented by the network computer. Internet users and users of powerful PCs remain almost indistinguishable from one another, which makes the network computer an end-user machine without an end-user fan club.

Its biggest advocates are cost-conscious CEOs and vendors who sense that networked applications might give them a fresh round of competition with Microsoft and Intel. These vendors, including IBM, are making the case to top business executives that they should be stifling their runaway PC costs by getting into simpler network devices.

Over the past five years, IS has built an infrastructure that supports PCs. And it has built relationships that have yielded IS control in exchange for a partnership with end users in making business applications that work. Consolidate this infrastructure and polish the partnership.

And let the high-steppers for the network computer watch where they tread, lest they put their foot in it.

Babcock is Computerworld's technical editor. His Internet address is charles_babcock@cw.com.

The Back Page

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Dispatches & images from the fringes of the electronic frontier

Pstent watch

Recently issued U.S. patents (Patent number, inventor/assignee, date issued)

A "slave" PC and audio/visual equipment used in the home to monitor a patient's health. The devices have a two-way, online link to a master computer at a health care facility. The master machine also can control a home robot nurse and get vital signs from in-home sensors. (5,553,609, Visiting Nurse Service, Sept. 2)

Thin, lightweight but strong lap tray that adjusts to fit a variety of laptop computer sizes. The tray is said to be easier to use than leg straps or portable desks. (5,553,824, Joseph G. Dutra Jr., Sept. 10)

Computer system that uses real-time shopper traffic data and statistical analysis to predict checkout line traffic and staffing requirements. It predicts how long each shopper will shop and how many items the shopper will select, then tells store managers how many express and regular lanes to open. (5,557,513, Quadrix Corp., Sept. 17)

Source: MicroPatent (www.micropat.com)

Ever wonder what s plastic card's magnetic stripe really says? This csrd reader from Bartizan in Yonkers, N.Y. – meant for capturing dats from trsde show badges – sends the hiddsn data to a diskette sr printer.

GRAZE ON COW FACTS

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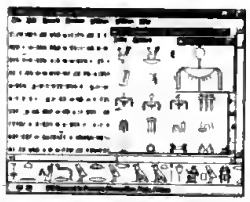
Altruism

Idealists have a new home on the Internet. The Contact Center Network – founded by software executive Ami Dar – unveiled a Web site (www.idealist.org) that tries to match volunteers with nonprofit and community groups that need them. Volunteer opportunities can be found by searching by ZIP code, area of interest or required skills. More than 700 organizations have posted information on the Web site. The matchmaker service is free, naturally.

It's that time of year, when students are sending college admission applications. That used to mean finding a typewriter to fill out forms with too-small spaces. But with the CollegeLink online service (www.collegelink.com), students supply their data and the service prints out completed forms.



The Centre for Computer-aided Egyptological Research at Utrecht University in The Netherlands (www.ccer.ggl.ruu.nl/ccer/) has developed Glyph for Windows and MacScribe for the Macintosh. Users type in numeric codes, and the program displays and prints a hieroglyphic font.

Send your alt.cw contributions to **mbetts@cw.com**. If your item is used, you'll receive a cool T-shirt.

Inside Lines

Microsoft's chapel of love

Attention, Comdex attendees. Are you hungry, tired and/or in love? Microsoft will pay for you to get married Wednesday from 7:30 to 10:30 p.m. in Las Vegas. Free beer and pizza — along with advice from sex counselor Dr. Ruth Westheimer — will be on hand at the Little Chapel of the Flowers. Lest you later worry that s computer trade show isn't the right venue for such s serious undertaking, Microsoft says it will also pay for annulments.

What next, client/server slots?

CasinoWorld Holdings, s vendor in Del Mar, Calif., isn't taking any chances on losing out on potential riches related to — get this — intranet gambling. It plans to build s system for creating an in-casino intranet to let users gamble and pay hotel bills online. A user flashes s fingerprint to play video games for money or to charge items to his hotel tab. The company hopes New Jersey and Nevada will approve the system by mid-1998. The product "is also ready for quick conversion to provide worldwide Internet access if gaming on the Internet becomes legalized," the company says. Like we doubted it.

Shed that skin

Business Objects in the first half of next year plans to join the rush of desktop query tools vendors that are losing their religion snd embracing s more server-oriented approach to support querying via the World Wide Web. Under the code-name Darwin, it is developing Web-enabled server versions of the four modules in its BusinessObjects query and reporting product line. Brio Technology and Cognos also are going the server route to get to the Web.

Walking on a thin line

Roger Copeland, administrator of new technology snd webmaster at GTE Supply in Irving, Texas, made an important distinction while introducing himself at an Information Builders' press conference last week. "I'm a geek," he said cheerfully. "But I'm not s nerd. That's s different thing."

Hasta la vista

Users who try to access Digital Equipment's AltaVista search engine by typing in www.altavista.com and up reaching the site of AltaVista Technology, Inc. (ATI) instead. ATI is s company from which Digital acquired the AltaVista trademark in March 1995. Digital now claims that the Campbell, Calif., company is infringing on its trademark, and it is dragging ATI to court to settle the issue. For the real AltaVista site, type www.altavista.digital.com.

Friendly (and free!) Notes support

Users tired of onerous Lotus Notes support [CW, Oct. 21] now have s place to turn to that is both prompt and free. A new Web page, "Ask the Notes Guy," has sprung up (w3.one.net/dhutter/inguru.htm) that promises an answer to any Notes-related question in 72 hours — or at least s referral in the right direction. Users can ask the Notes Guy (his real name is Dave Hutter) questions about versions of Notes from 3.x up to the pending Notes 4.5, and they can even rate the urgency of their questions as critical.

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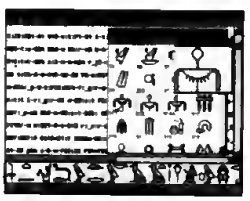

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What good, ghostburger style?

Cybercritical [illegible] In the blue, CMP, isn't taking any chances on [illegible] related to — get this — Internet gambling. [illegible] against the counting on [illegible] fattened to [illegible] and egg hotel bills online. A new feature [illegible] fingerprint to [illegible] games [illegible] or [illegible] this hotel tab. The [illegible] will appease the spoilers by mid-1998. [illegible] which connection to provide worldwide Internet [illegible] If [illegible] the Internet becomes legalized," the company says. Like we doubted it.

Steal that site

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"The built-in systems management utilities that came with OS/2 Warp Server

really pumped up my network."

When Nina Giske, a network administrator for the Confederation of Norwegian Business and Industry, was introduced to OS/2® Warp Server at a symposium in Paris, she didn't realize the effect it would have on her when she got back home and installed the trial copy.

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